VOLUME L NUMBER FOUR

# THE NATIONAL GEOGRAPHIC MAGAZINE

OCTOBER, 1926

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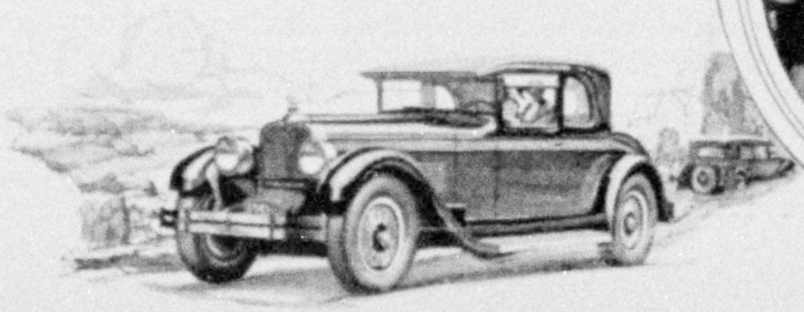

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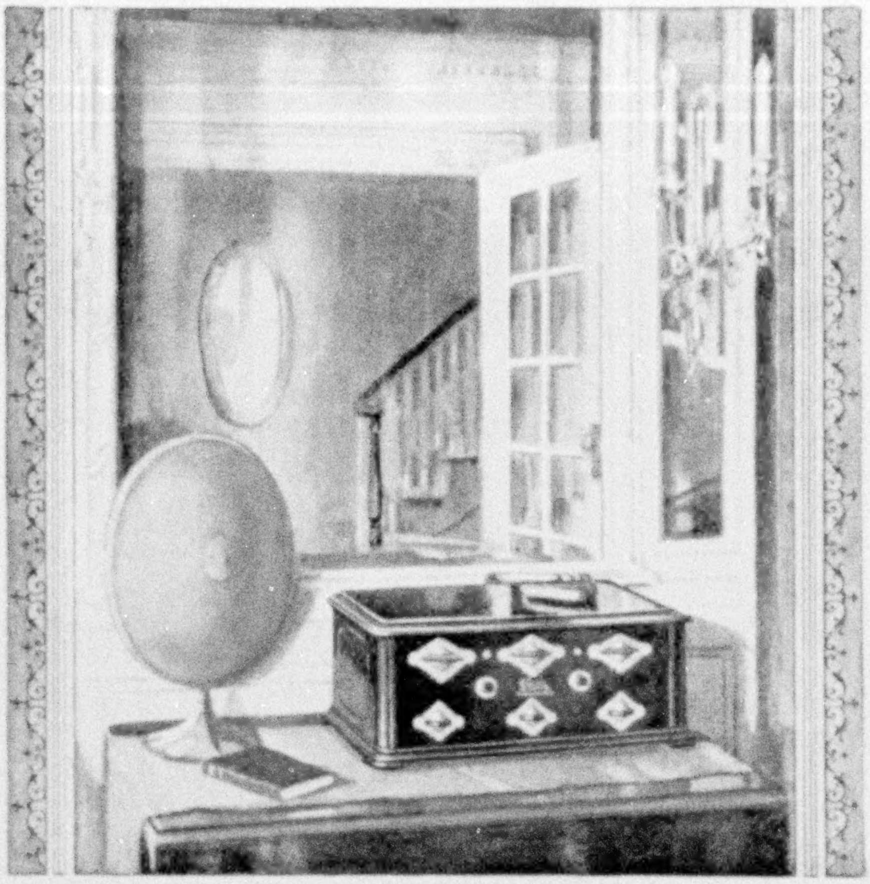

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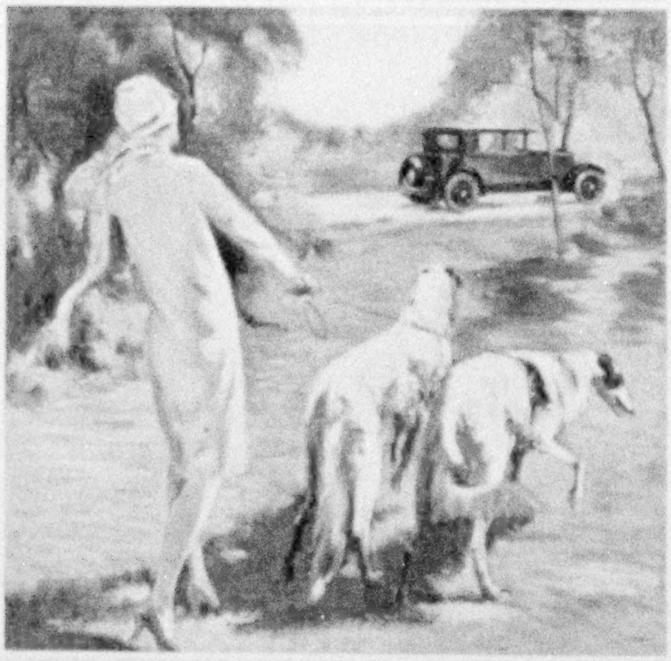

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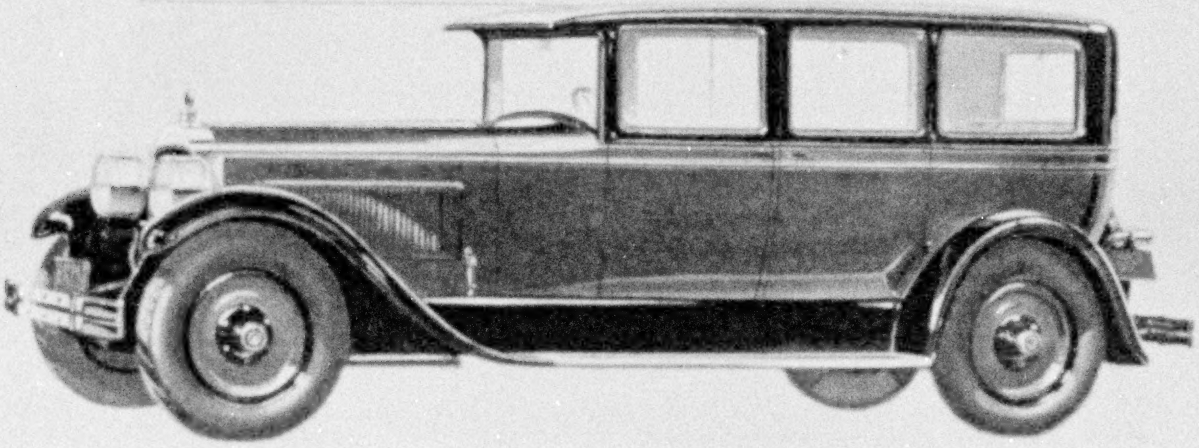

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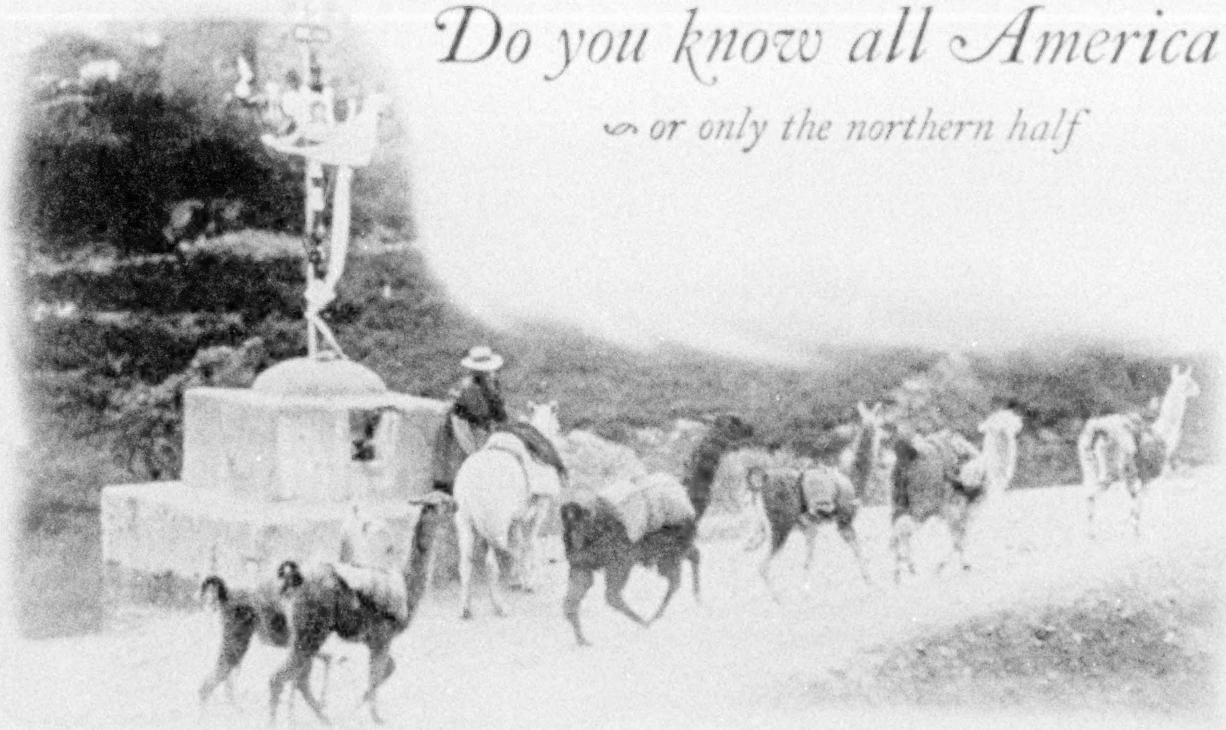

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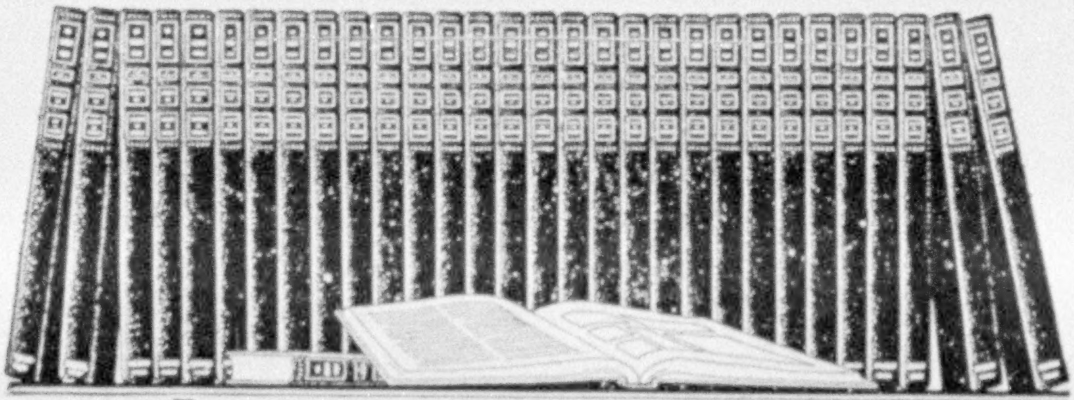

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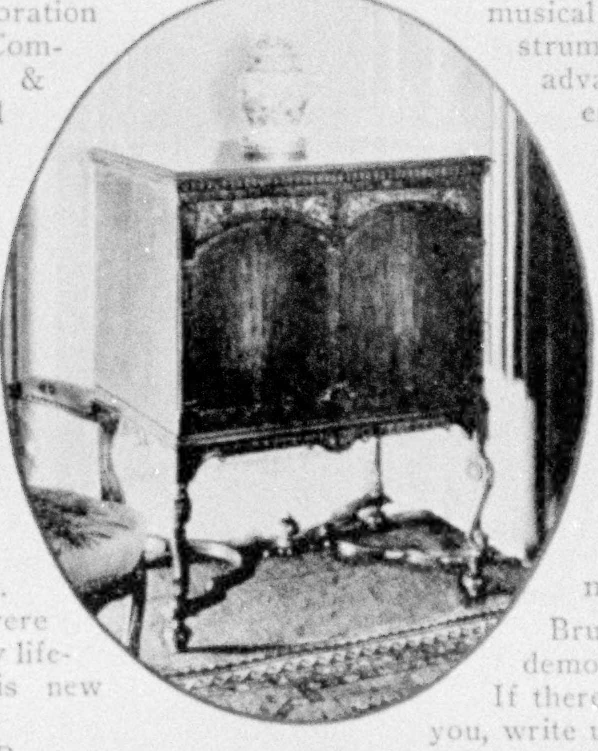
The Brunswick Panatrope may be had either alone or in combination, in one cabinet, with the Radiola Super-heterodyne. Thus it puts at your finger-tips all recorded music and the rhythmic, newsy programs of radio as well. The Panatrope may also be used as a loud speaker for your present radio set, with musical results equally superior to what you are accustomed

This marvelous instrument is now offered in a variety of beautiful cabinets. It operates entirely from the light socket; no batteries or outside wires needed.



*Panatrope Model 10. Finished in highly figured walnut: Price $650 (slightly higher west of Rockies).*

*Another triumph*

Brunswick has also developed another musical instrument, as yet unnamed,* for bringing out the music of the new records. In tone quality and its ability to reproduce the entire musical scale, we believe this instrument represents a very great advance over anything in existence, except the Panatrope. It does not utilize the electrical equipment of the Panatrope, and its prices are lower, ranging from only $115 to $300 (slightly higher west of Rockies).

Before you buy any music reproducing instrument of any kind, or radio, hear the Brunswick Panatrope, the Brunswick Panatrope & Radiola, and the new Brunswick musical instrument as yet unnamed.*

Brunswick dealers will gladly demonstrate these instruments. If there is no Brunswick store near you, write us.

**$5,000 for a name*

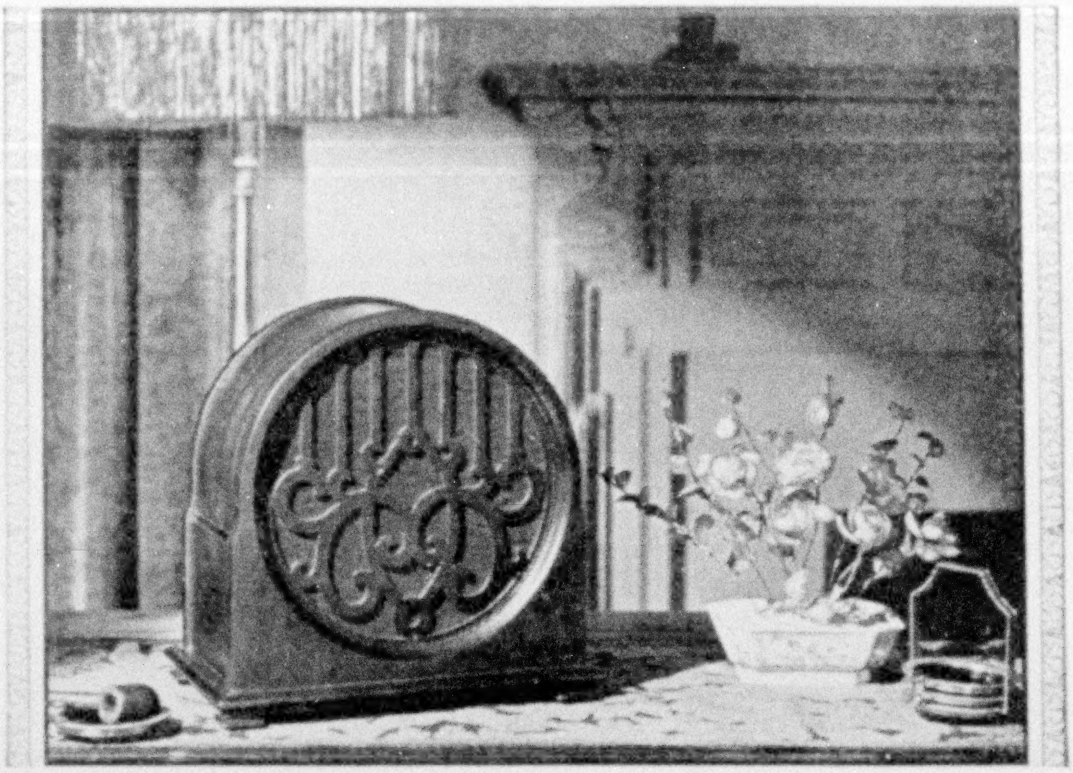
To find a suitable name for the new Brunswick instrument described above, we offer prizes totaling $5,000 (1st prize, $3,000; 2nd prize, $1,500; 3rd prize, $500) for the best name submitted with slogan not exceeding 10 words describing its music. In the event of a tie, a prize identical with that tied for will be awarded each tying contestant. Contest opened August 14; closes December 15 at midnight. Write for free booklet giving all details. Address Dept. P-176.

*Brunswick Records by the new "Light-Ray" electrical method [music by photography] are now on sale every Thursday.*

**Brunswick**

PANATROPES · RADIOLAS · RECORDS

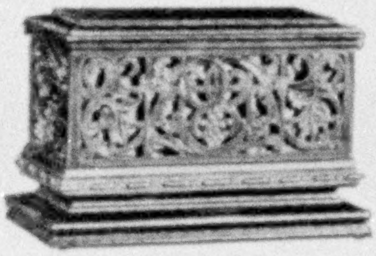
THE BRUNSWICK-BALKE-COLLENDER CO., General Offices: 623 S. Wabash Ave., Chicago



*Artistically, this new Amplion Cabinet Cone graces the most exquisitely appointed drawing room—acoustically, it sets a new standard in radio reception.*

AC12 . . . . $30

# HERALDING~ a New Radio Voice



AMPLION PATRICIAN

A new model of the air column type—as pleasing to the eye as to the musical ear. Non-directional general diffusion of sound. 48-inch air column in an 18" x 12" x 9" cabinet.

AA18 . . . . $45

*When genius sings or speaks or plays—a breathless silence follows.*

*When the new Amplion Cone reproduces vocal or instrumental tones—an awed hush ensues.*

For this new type of cone, designed by the engineering genius of the world's largest makers of sound reproducing devices, sets an entirely new standard in radio reception.

A precision of sound-values—a mellow clarity—an utter absence of distortion or "chattering"—characterize the new Amplion.

Built on an entirely new principle of *balanced* construction and exceptionally responsive to the weakest signals, the new Amplion reproduces the entire vocal and musical range with an astonishing purity, combined with the utmost volume.

*Sensitive as a deer to the faintest sounds, this Amplion sets a new standard of reception for every set.* It is the last link in the chain of quality broadcasting.

As you listen in—to classical music or jazz—to symphony concert or brass band—to speakers or singers—it becomes increasingly difficult to tell the difference between the actual performance and *the new radio voice!*

AMPLION DRAGON

The world's "best seller"—adopted as the standard among leading radio engineers for experimental and comparative tests. Famous for its sensitivity to speech and musical signals, and for volume without distortion.

AR19 . . . . $42.50

*Write for the interesting Amplion Booklet*

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*—for these lost gems of literature*

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The result is *the famous Bibelot!* The strangest, most remarkable library in the world. Glorious things you've heard about, perhaps, but somehow never could get. Books you've dreamed about and yearned some day to possess. Books to fondle, and love . . . and keep a lifetime.

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Use the coupon and we will send you at once, without cost, a fascinating little book called "Distinguished Reading." It tells you all about The Bibelot, and about the lost and hidden masterpieces that have been rediscovered. The gift book is yours for the asking. We urge you to clip and use this coupon NOW. Wm. H. Wise & Co., Dept. 1710, 50 West 47th St., New York City.

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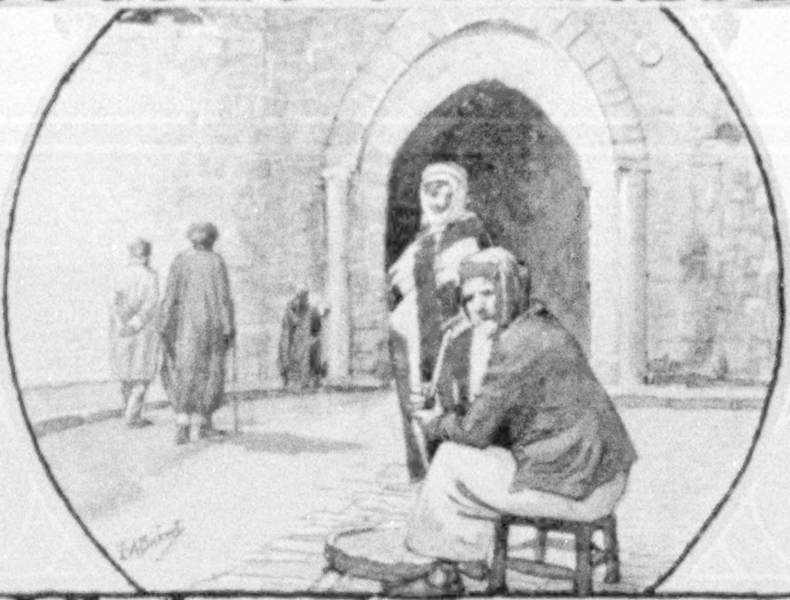

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TO the sunny Mediterranean—the Scenes of Ancient History and Old-World Romance. A winter voyage in spring-like weather, with snow-capped mountains, flowers, vineyards, golden shores and a calm blue sea enchanting your view. The mind is relaxed and the heart rejuvenated on this

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The largest Steamer sailing to the Mediterranean

*From New York January 22nd - Returning March 30th, 1927*

A Luxurious Ship—A Cuisine and Service unexcelled—Cook's unflagging Courtesy, well ordered Management and unmatched Efficiency.

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*Sailing from New York January 12th, from Los Angeles January 28th, 1927*
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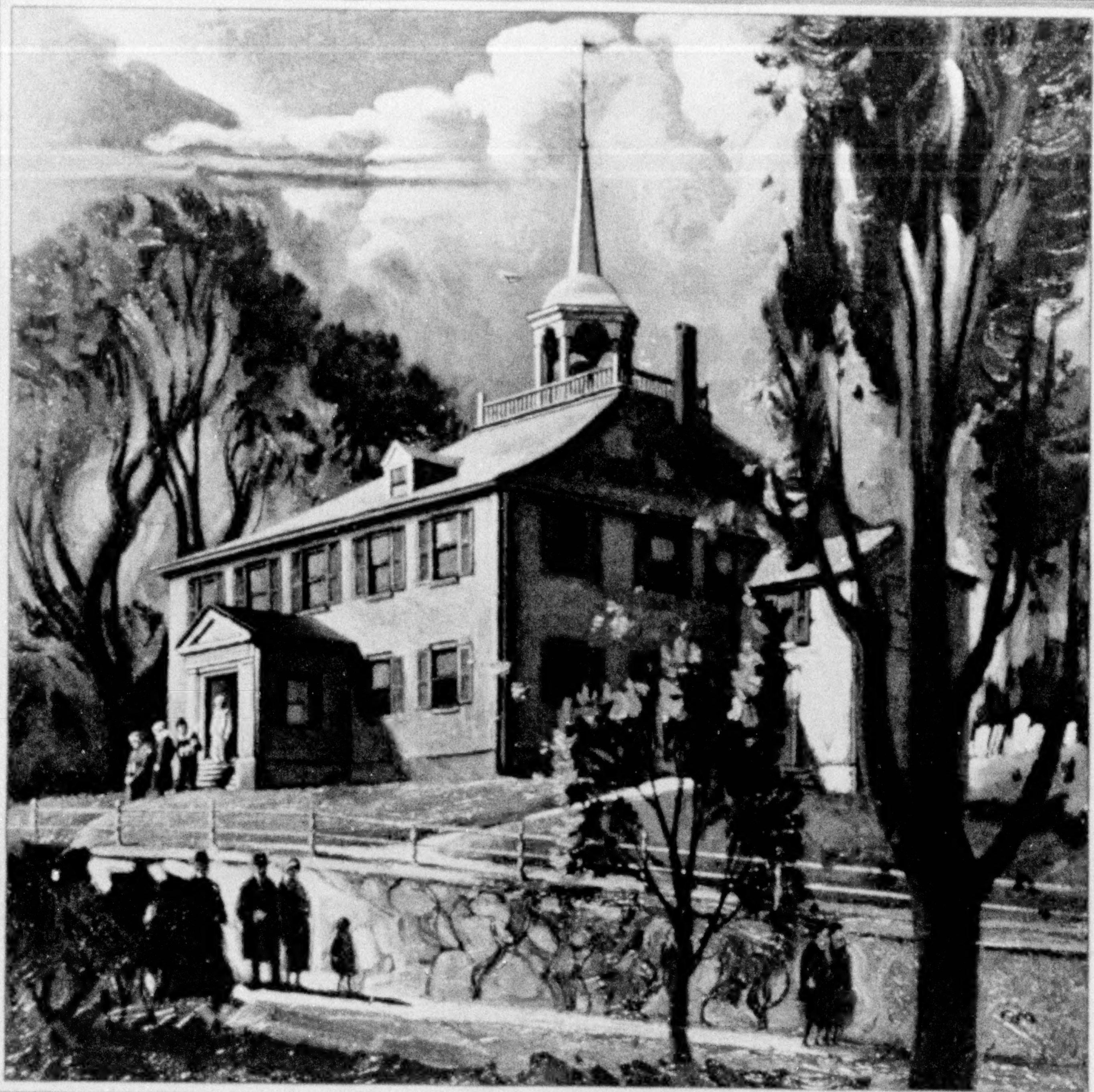
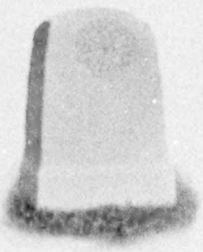


"Old Ship" Church—Hingham, Mass.
One of the oldest edifices in the United States, having been erected in 1681.

This is the eighth of a series of historic New England churches painted by Glen Mitchell.


*The thoughts which inspire your memorial forever give your message to those with whom you may no longer speak. For thoughts are the speech of eternity.*

Our Certificate of Perfection, when requested from any memorial dealer, assures you of our personal inspection through the various stages of completion and is your perpetual guarantee against defective workmanship and material. Write for Booklet "G"

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**Rock of Ages**

"The Flawless Barre Granite"

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# What is CURIOSITY *teaching them?*

*Why is the sky blue?*
*What is air made of?*
*Why does a ball bounce?*
*Why do we sneeze?*
*Why has water no taste?*

Your children's questions—how do you answer them? Mail coupon for free book.

THESE children have The Book of Knowledge in their home. It is a delight to them every moment of the day, and is turning their eager curiosity into important knowledge. Their teacher will tell you they give her clear and intelligent answers. They have made a long start in the race for knowledge.

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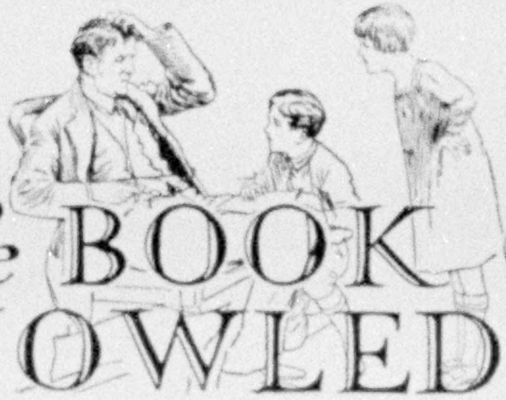

Back of every child's success at school there is the influence of home, and of well-selected home reading.

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Here is the ideal link between school and home, creating better work at school; happier hours at home.

***Already in over a million homes***
***15,000 educational pictures***

This wonderful plan is the idea of a father who loved his child and knew its needs. He drew to his help other parents of like desire and long experience in writing for children. Together they studied the mind of the child in his effort to find out everything he wants to know. From their discoveries The Book of Knowledge grew. Children do not have to be urged to read and consult it. They recognize it as their own book, *really made for them.*

On exhibition at the wonderful
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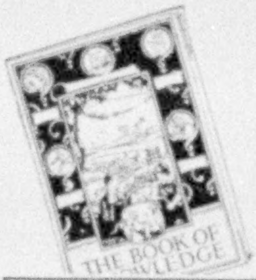


Send the coupon for section containing questions, pictures and story-articles from The Book of Knowledge. Contents: Animals, Plants, Fish, Insects, Industries, etc.; How Long Do Animals Live? Where Does the Rain Go? Three Ways the Earth Moves; etc. Show it to the children. See what they think of it.

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*Gruen Cartouche 23, set with 4 diamonds,* $85

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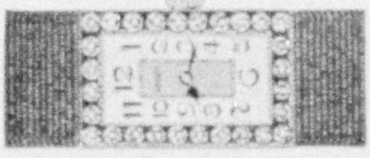

*Gruen Wristlet E 107, paved with diamonds, iridio-platinum case, 17-jewel* PRECISION *movement,* $350

NOT only when you buy them; when you wear them, too!

Even to the unexpert eyes of your friends and everyday associates, the name Gruen on the dial of your wrist watch immediately signifies that the diamonds with which the case is set are of established worth.

For all the precious stones selected to adorn a Gruen wristlet must meet the Guild's traditional high standards.

They must be of extra quality and of the finest cut.

They must be perfectly matched and set in a case skillfully fashioned for beauty and harmony of design and for thorough protection of the fine Gruen movement within.

The Gruen name on a diamond wristlet therefore represents an assurance of value as secure as the endorsement of a reputable bank on an investment bond.

Thus the name Gruen, so long recognized as the standard of excellence in fine watch movements, can now give you complete confidence in the value of diamond-set cases as well.

Gruen diamond wristlets are priced at $75 upwards, with a few extra fine pieces as high as $15,000.

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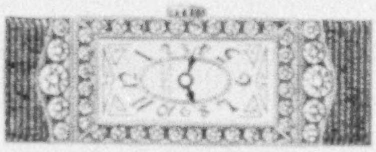
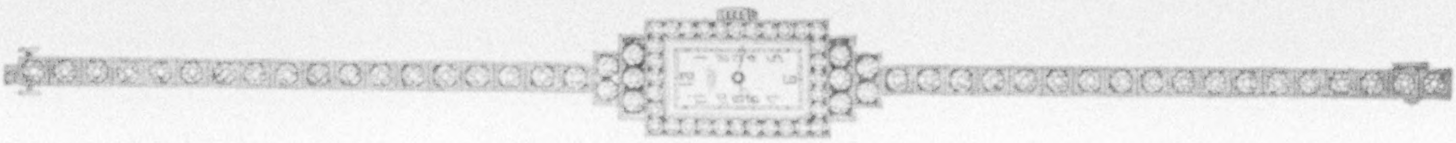
*Engaged in the art of fine watchmaking for more than half a century*

*Gruen Cartouche 121, set with 4 diamonds, 2 sapphires,* $100

*Gruen Cartouche 189, set with 12 diamonds, 8 sapphires, 17-jewel* PRECISION *movement,* $175



*Gruen Wristlet 3P 105, paved with diamonds, iridio-platinum case, 17-jewel* PRECISION *movement,* $785



*Gruen Wristlet A 847, set with 79 diamonds, 18-jewel* PRECISION *movement,* $1985

# GRUEN GUILD WATCHES

60 Golf Courses—Play All Winter

A Foothill Palm Grove

Summer Sports Under a Warm Midwinter Sun

# "I've Planned *This,*"

## writes a wealthy traveler,

# "For My Winter Vacation"

**"—another trip to *Southern California*. I'm coming with golf clothes, camping outfit, fishing tackle, gun, hiking boots and horseback-riding paraphernalia. You have the finest sport-land in the world. Where else would I want to go?"**

THIS wealthy man, who can afford whatever he desires, owns two winter homes in Southern California.

And yet Southern California is not merely a millionaires' playground. "One of the advantages," says this authority on world resorts, "is that the man of *average means* can get there all that the millionaires are seeking. Rich men can travel to the place in private cars and stay in expensive suites of rooms if they prefer. But that is all. *The rest is FREE to anyone,* things that NO man can buy—the flowers and the wonderful sunshine, the pure invigorating air, the mountains and the sea, the fine sports and the recreations."

You, too, should know "the lure" of Southern California, *first hand*. You'll find desirable accommodations of every kind, and good food, at reasonable cost. Be *in* this unique atmosphere. *Feel* the sunshine and soft warmth. *See* the mountains and the shimmering ocean. *Inspect* the Old Missions. *Actually ride* over the 5,000 miles of famous concrete motor highways. *Play* golf on these courses. *Camp and hike* in the vast wildernesses. Enjoy the difference and the change.

Any railroad ticket agent will explain. See the entire Great Pacific Coast.

New, 63-hour trains from Chicago very soon will make it easier than ever before to take your vacation here.

We have issued probably the most complete book on vacations ever put in print. 47 pages, illustrated, tell all about it.

Take the first step—mail coupon below. We'll send a copy free. Then make your winter plans—or come now for a delightful Fall visit.

Off to the Mountains to Hunt and Fish

# Southern California

### All-Year Vacation Land Supreme

The City of Los Angeles, with a population of well over a million, is the largest city on the Pacific Coast and is the hub of one of the country's richest agricultural communities.

The growth, wealth and marvelous resources of Southern California are indicated by the following facts and figures pertaining to the County of Los Angeles alone:

Value of Agricultural and Live Stock Products (1925), $85,912,744; Value of Citrus Products (1925), $23,241,503; Oil Production (1925), 140,000,000 bbls.; Harbor Imports (1925), 4,156,177 tons; Harbor Exports (1925), 16,154,566 tons; Total Harbor Tonnage, 20,310,743.

A producing season of 365 days a year permitting year 'round crops.

All-Year Club of Southern California
Dept. 10-D, Chamber of Commerce Building, Los Angeles, California.

Please send me your free booklet about Southern California vacations. Also booklets telling especially of the attractions and opportunities in the counties which I have checked.

☐ Los Angeles ☐ Orange ☐ Riverside
☐ San Bernardino ☐ Santa Barbara ☐ Ventura
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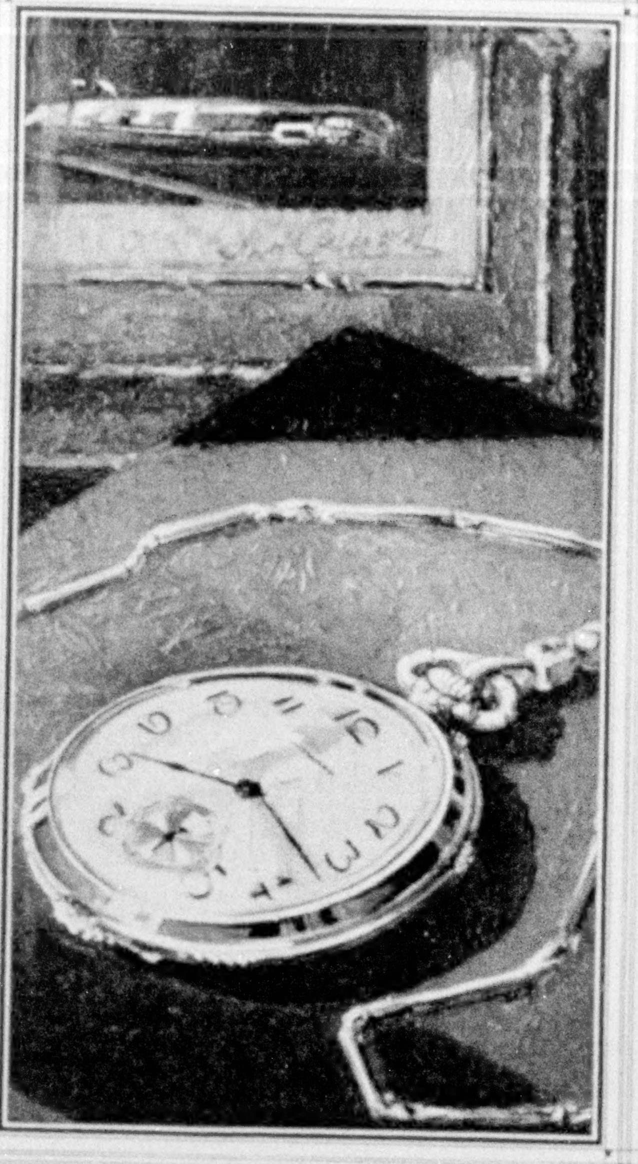

*Howard Watches are priced from $60 upward. The price of the model illustrated in 14 Karat Solid Gold Case is $100*

Nothing can ever reduce the cost of the infinite, personal care and skill that are needed to maintain the character and life-long precision of the Howard Watch. But the confidence the Howard gives its owner is a satisfaction well worth the investment. . . . . . . . .

THE KEYSTONE WATCH CASE CO.

*Riverside, New Jersey*

# *The* HOWARD *Watch*

# CALIFORNIA

# *Another* GOLDEN YEAR

## *See for yourself what Autumn means in the Golden State!*

ONCE more across millions of fruitful acres the golden harvests of California gleam in the sunshine. They represent five hundred million dollars of new crop wealth from fruitful soil, abundant irrigation and long months of blue skies.

Here, in a word, is OPPORTUNITY. Practical, material opportunity, in a land that has been ever-growing for three-quarters of a century. A land that has gathered millions of people from other states and made them prosper until now their bank accounts are twice as large, their automobiles *more* numerous, their standard of living as measured by telephones and electrical home comforts, by schools and income tax returns, far higher than America as a whole can boast.

San Francisco, the Bay Cities, the palm-avenued towns and cities of coast and valleys, the comfortable farms and orderly orchards whose millions of acres stretch like an unrolled map for nearly a thousand miles—all these form a picture of prosperity. This prosperity is for you as well, if you can succeed where you are and have at least the moderate competence necessary to establish yourself soundly anywhere. Come and see California for yourself. Your local railroad ticket agent can tell you about the low rate homeseekers' tickets from Chicago, St. Louis, Memphis and points west; also about round trip fares from all points.

Hundreds of thousands of people from other states toured California's famous highways this summer and visited the splendid mountains and beaches that form our year 'round playgrounds. Thousands of them have stayed or are coming back. They've discovered—as *you* will—a new country of wider opportunity!

Besides the five hundred million dollars that came this year from California's agricultural crops, there is a five hundred million dollar manufacturing output yearly in San Francisco alone. Another eighty-seven million dollars comes yearly from timber to the north and east of San Francisco Bay. Millions are being spent this year in the mountains tributary to San Francisco just to develop the new hydro-electric power required by growing industries and population. Oil and minerals from California's underground treasure-vaults added last year four hundred thirty millions more to California's annual yield of wealth. The port of San Francisco, gateway to Hawaii and the Orient, cleared imports and exports valued at three hundred seventy million dollars—more than a million dollars per day—in 1925. And this is only part of the picture of California prosperity.

*California - Where Life is Better*

Send now for "California—Where Life is Better." You'll find much that is valuable to you in this 48-page illustrated booklet, sent on request. It is published by Californians Inc., a *non-profit* organization devoted to the sound upbuilding of the state. Write for it today.

MAIL *this coupon for* FREE BOOKLET *about life in California*

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# 10,000,000

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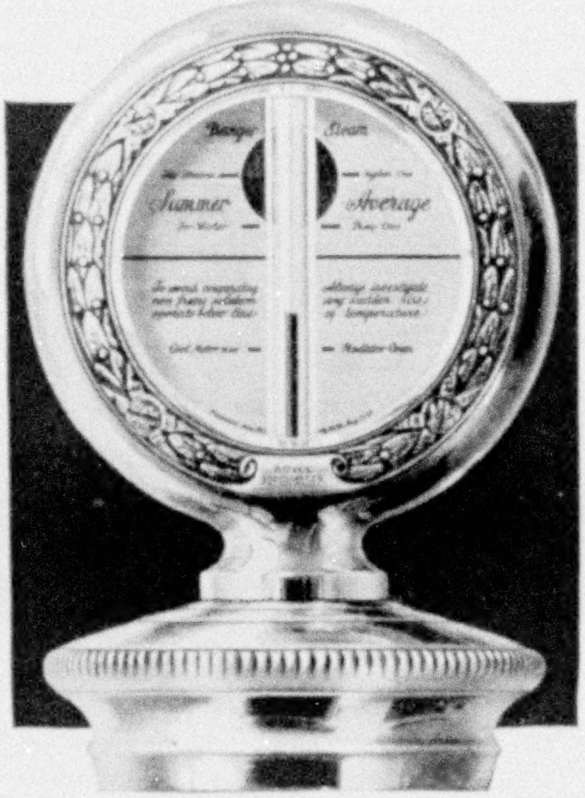
1926 has added 2,000,000 more users of the Boyce Moto Meter. *Today it is protecting 10,000,000 motors.*

Could there be greater proof that the motoring public wants a motor heat indicator mounted on the radiator cap directly in the line of driving vision where the eyes need not be averted from the road to a confusing array of dashboard instruments?

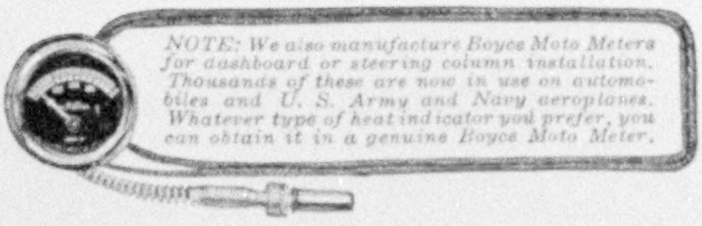
The demand for these millions of genuine Boyce Moto Meters is the public's response to a permanent combination of beauty and utility rather than mere radiator ornaments of the moment.



*Standard Model Ten Dollars*

It is so simple in construction that you can put it on yourself; requires no upkeep, outlives any car.

The Boyce Moto Meter is made both in America and five foreign factories. Dealers everywhere will show you Boyce Moto Meters for every type of car—in various designs—$3.50 to $15.00.




**BOYCE**

**MOTO METER**

TRADE MARK REG. U.S. PAT. OFFICE

THE MOTO METER COMPANY, INC., LONG ISLAND CITY, N. Y.

THE MOTO METER COMPANY OF CANADA, LTD., Hamilton, Ontario

*The name "Moto Meter" is the registered trade-mark and the exclusive property of this Company*

# "No one who speaks the English language can afford not to own this book!"

IT is less than one inch thick. The average book of the same size contains about 200 pages. This book contains 1,352 pages. *It contains the complete works of Shakespeare.*

Do you wonder that most people find this almost unbelievable? "You don't mean that it contains *all* of Shakespeare's works!" they exclaim. We assure them that it does. All his plays, all his poems, all his sonnets.

"But they must be extracts, then," they say. No, there are NO extracts. Everything is complete and unabridged. In addition, there is an index to characters and a complete glossary of 28 pages.

Here, in short, is everything that could be obtained in the ordinary cumbersome set of Shakespeare. And at only a fraction of the cost! The type is NOT small; it is large, clear and easy to read.

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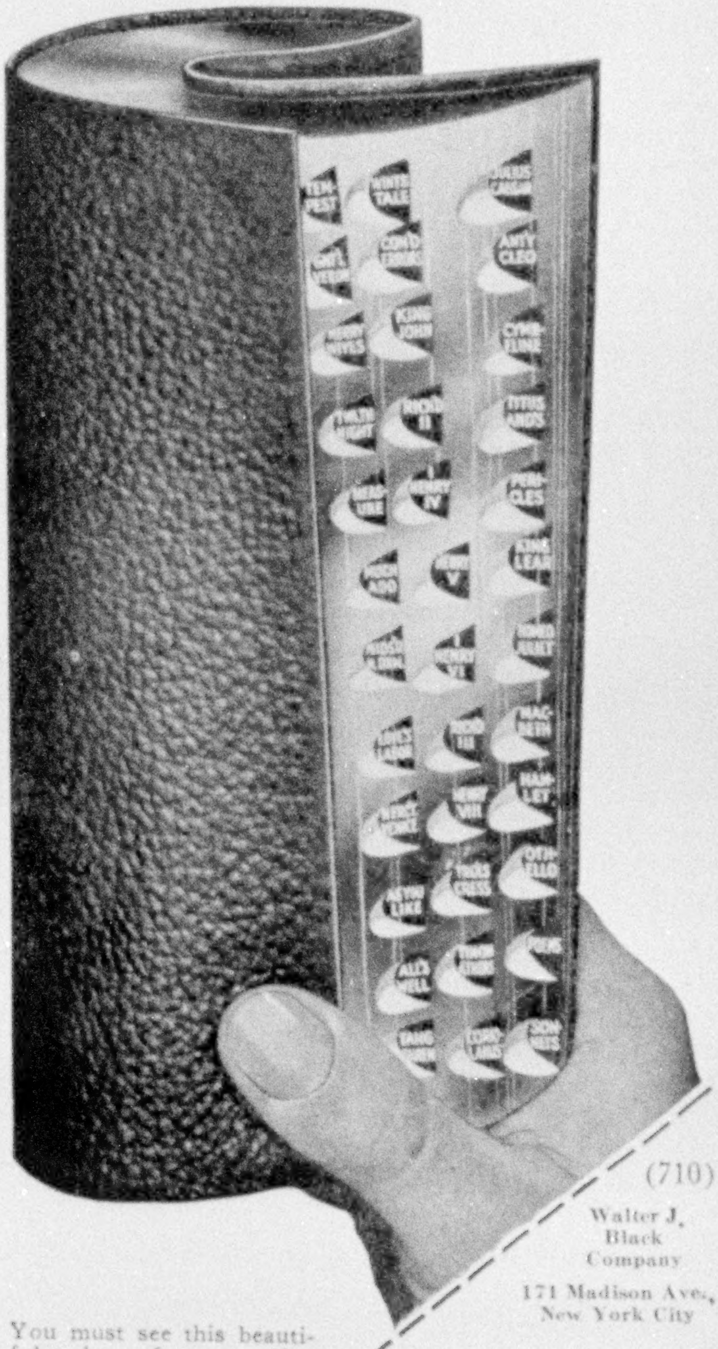

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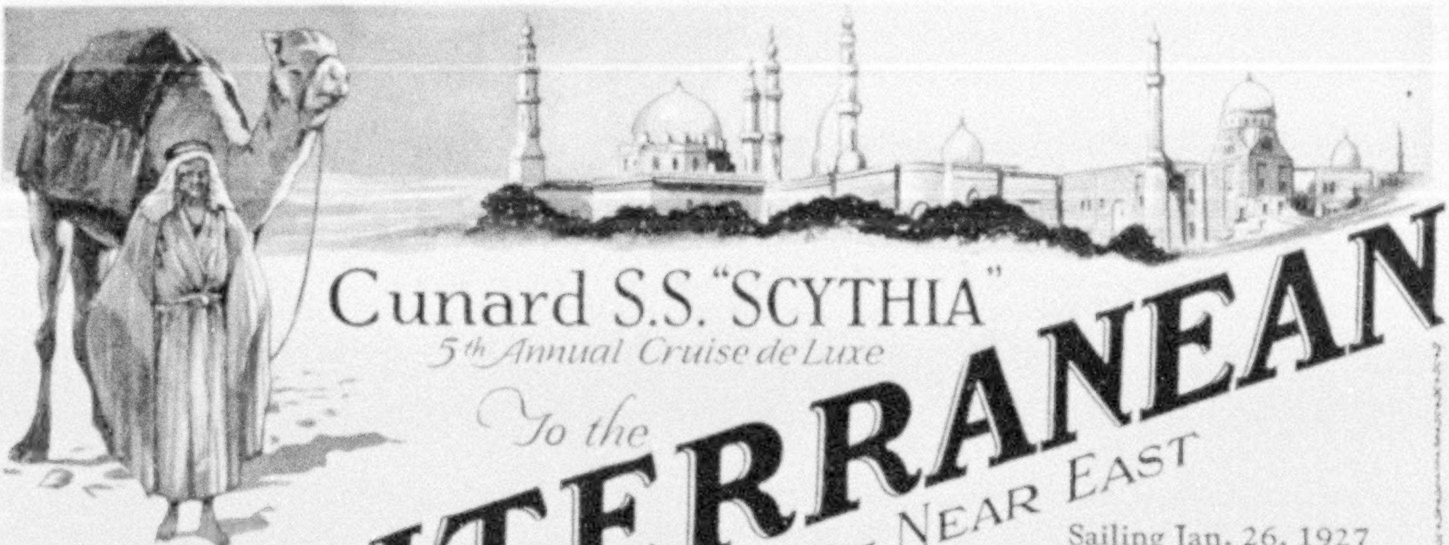

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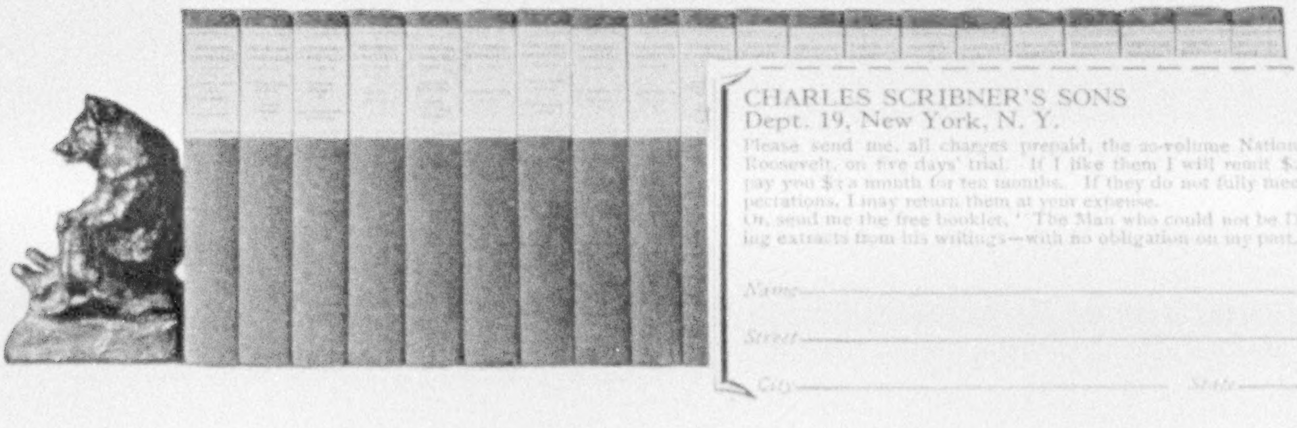

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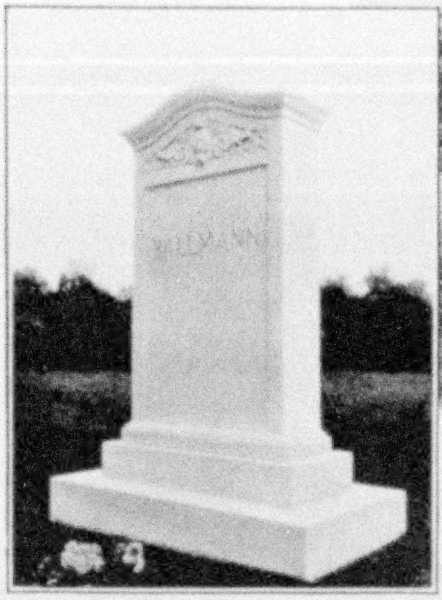


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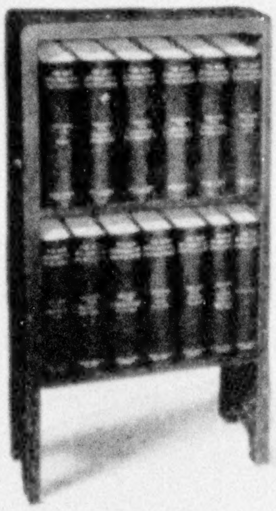

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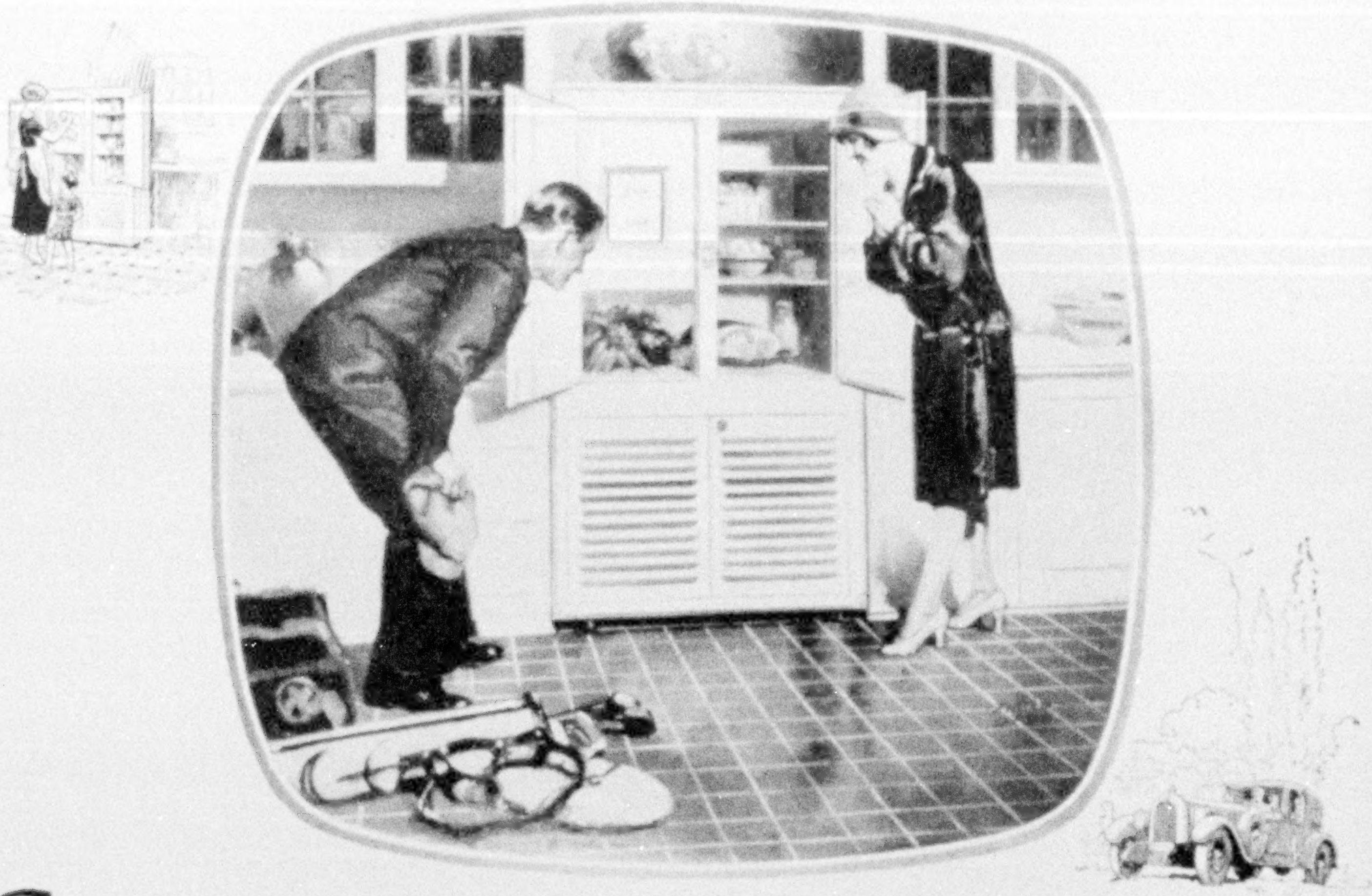

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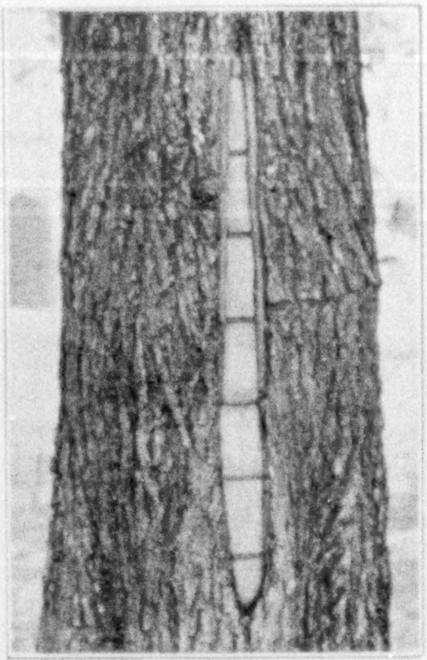

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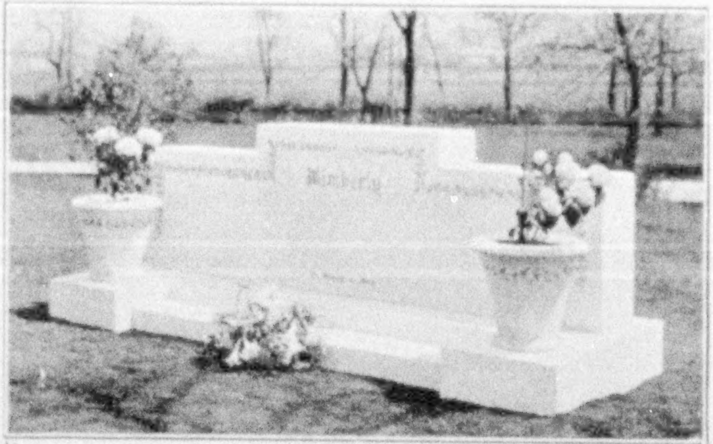

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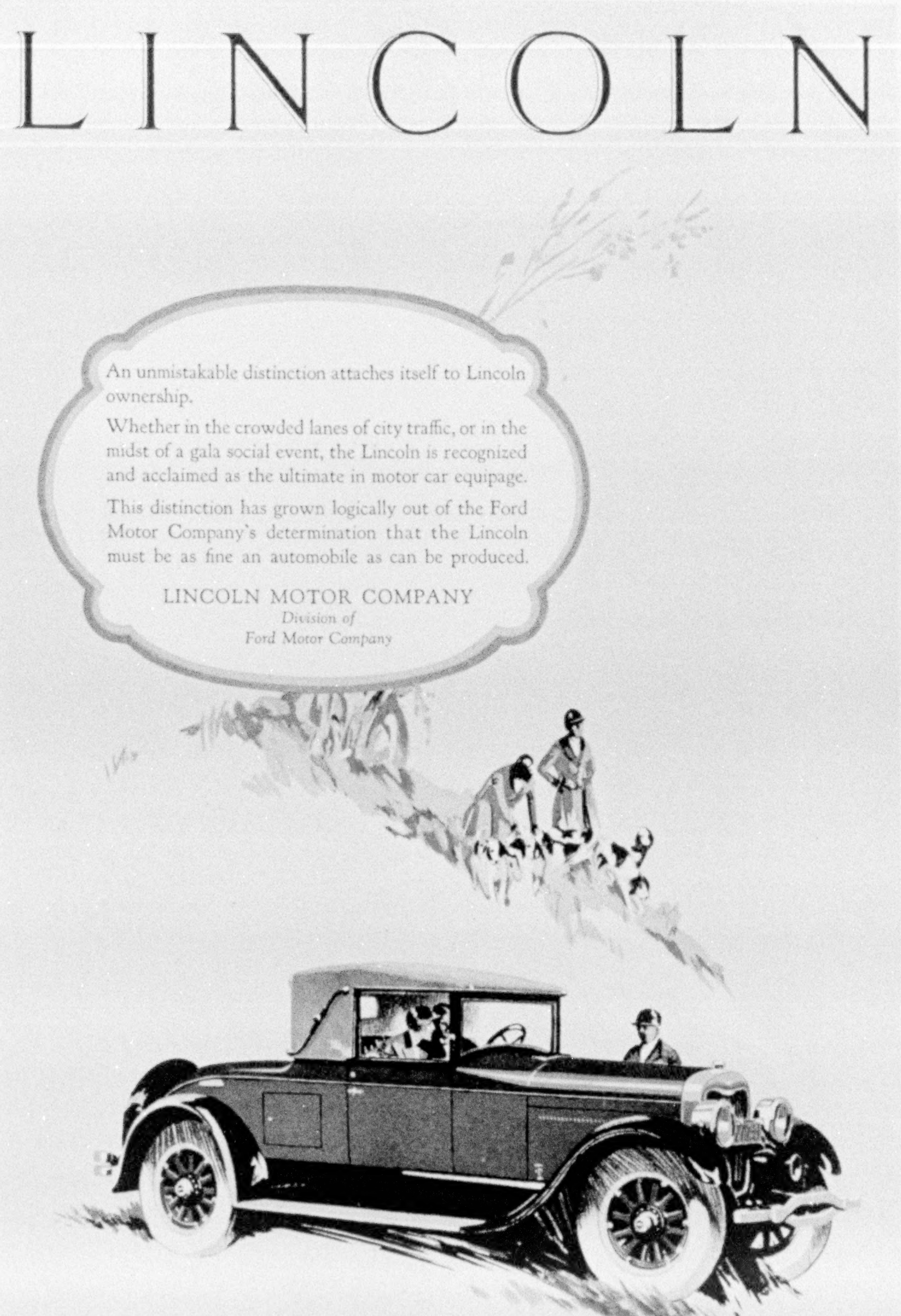
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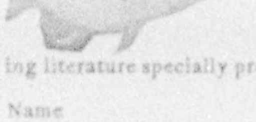

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# Where Attacks Start

NO one will gainsay the desirability of topping off the body with a head. From the esthetic point of view it makes a symmetrical and sometimes attractive finish to the body. But heads must be considered from another angle. The head is like the main office of a great business corporation. Orders originate there which are sent throughout the body. Located within close range of each other are the organs of sight, hearing, smell and taste.

When things begin to go wrong with the head, disturbances may be expected in remote parts of the body. An apparently slight local infection in the head may cause grave physical damage—even death.

Myriads of germs live in infected noses and tonsils and adenoids, and at the roots of diseased teeth. These germs often pack up their families and travel to adjoining sinuses—the cavities in the bones of the face and forehead. Some journey to the ears and set up housekeeping.

Eventually these germs get into the blood and embark on a cruise of the body. Some get off in the joints, others in the heart, and still others select the kidneys. Heart disease, arthritis, deafness, failing eyesight, neuritis, anemia, rheumatism and even appendicitis may be traced to head infections.

Nasal catarrh spells trouble, the source of which should be located at once. Yet few persons realize the danger and neglect catarrh because they believe it to be the inevitable result of the climate in which they live. Some kinds of catarrh are affected by climate, others are not. But the point to remember is that catarrh is not a disease. It is a symptom of disease which is often curable when properly treated.

Colds are frequently the beginning of serious nose, throat and ear troubles. The sequel to neglected snuffles of childhood is often the hearing-horn of old age. Do not ignore what seems to be "merely a cold".

Now—before cold weather sets in—have your nose, throat and teeth thoroughly examined for any possible diseased condition. Do not go through life suffering from handicaps that reduce your chance of happiness—that may shorten your life.

A famous authority states that thousands of deaths annually, among those of working age, are caused by organic conditions largely due to what the doctors call focal infections. In plain words, this means the diseased spots where germs lodge and multiply and start spreading their campaigns of trouble.

Most cases of focal infections are located in the head—teeth, tonsils and sinuses.

Authorities agree that infections of the head and nose in the early autumn frequently lead to attacks of pneumonia, which with appalling regularity appear in January, February and March.

The Metropolitan will gladly mail you, without cost, two valuable and helpful booklets—"Common Colds" and "Care of the Teeth".

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# A bit of chocolate history

Back in 1906 Whitman's selected from the various chocolates they had been making since 1842 those particular nut centers, caramels, nougats and other firm and "chew-y" kinds that were preferred by a large class of candy buyers.

These selected chocolates were packed in a green and gold box and because they were an offering to particular people the box was named the FUSSY PACKAGE FOR FASTIDIOUS FOLKS.

The Fussy Package made an immediate hit, and ever since has been the favorite candy of a growing circle. Also it has been a distinguished gift package.

The Fussy Package was the pioneer in the line of special assortments originated by Whitman's which now includes the SAMPLER, SALMAGUNDI, PLEASURE ISLAND, BONNYBROOK, and other packages, each catering to a real candy taste and preference.

Fussy Packages are in sizes from half pound to five pounds.

## *For Hallowe'en*

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PHILADELPHIA
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Vol. L, No. 4 WASHINGTON October, 1926

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# CANADA FROM THE AIR

## Flights Aggregating 10,000 Miles Reveal the Marvelous Scenic Beauties and Amazing Natural Resources of the Dominion

By J. A. Wilson

Secretary, Royal Canadian Air Force

"THE air flows over both land and sea; more than either land or sea it is the place of vision, and of speed and freedom of movement. What we of this generation are witnessing is a process whereby the air shall come into its own. It will become a great highway for the traffic of peace."—*Sir Walter Raleigh's "War in the Air"* (1922).

The day of fulfillment of this prophecy is approaching fast, and nowhere will its advent be of greater advantage than in Canada. Vision is required to-day to see Canada as a whole, to grasp the magnitude of her heritage and its responsibilities.

Speed and freedom of movement throughout the length and breadth of so large a country will bring her provinces into closer touch, make the people of each section more familiar with their neighbors in other provinces, and thus give all a wider outlook and a clearer understanding of the problems and duties of the Dominion as a whole.

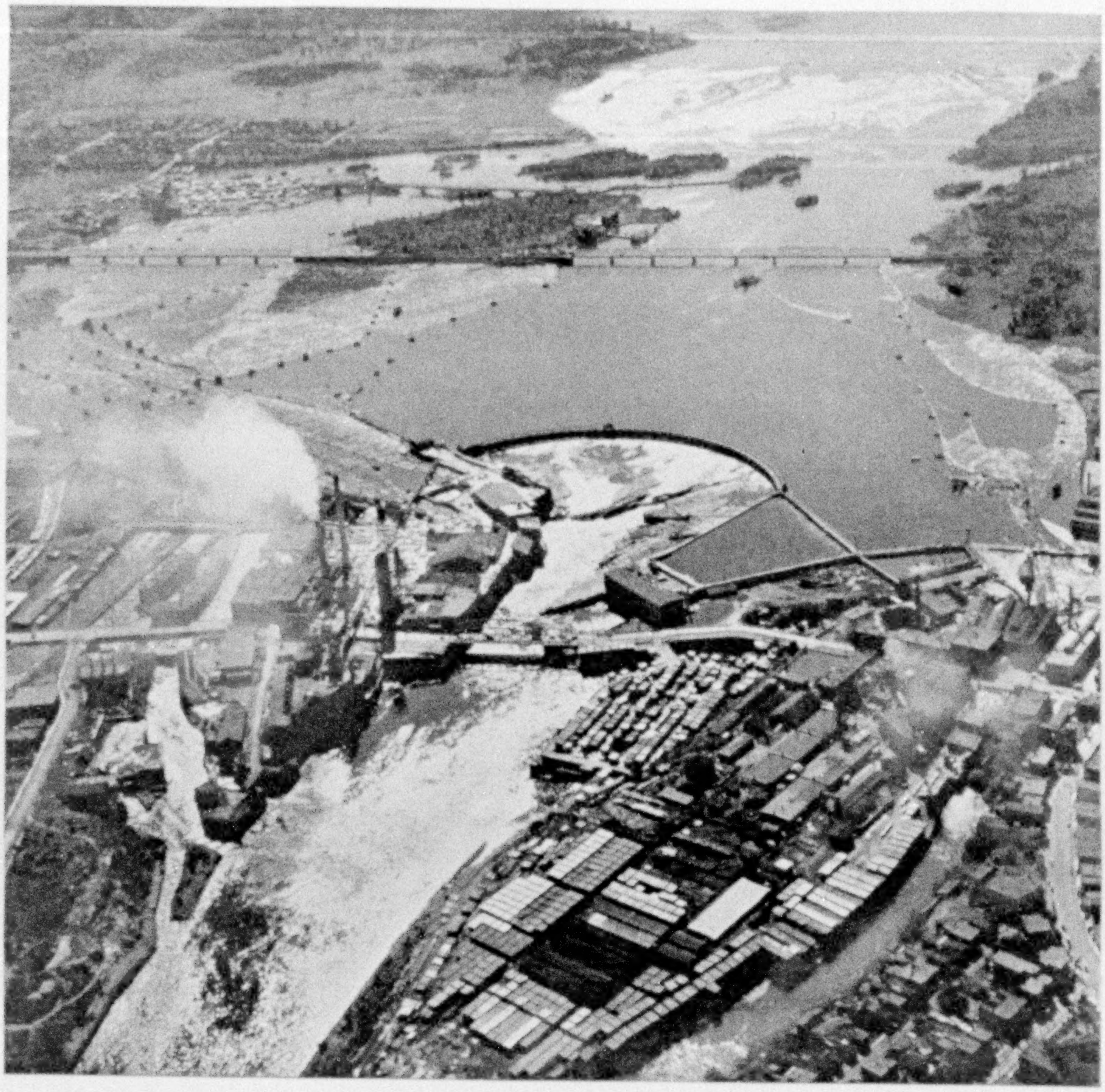
### CANADA WAS EXPLORED BY SEA, RIVER, AND LAKE

The story of the discovery, exploration, and settlement of Canada, from the days of Jacques Cartier (1534), Samuel de Champlain (1603), and Henry Hudson (1610) down to the advent of the railroad, in the middle of the last century, is one of travel by sea, river, and lake.

The waterways of Canada provide easy access to the heart of the continent. Nearly half the area of the Dominion, excluding for the moment the District of Franklin, comprising the Arctic islands, is drained by majestic rivers—on the Atlantic coast, the St. Lawrence; on Hudson Bay, the Nelson; and on the Arctic, the Mackenzie. No great natural obstacles divide these river basins, and passage from one to another is easily made by short portages. Travel by boat or canoe throughout the northern and eastern parts of Canada, though slow, has always been easy.

Until the railways were built, settlement and commerce were largely confined to the seacoast and the territories adjacent to the great rivers and lakes of the interior.

The age of railway expansion followed the confederation of the colonies of British North America into the Dominion of Canada in 1867. This had its chief effect in western Canada and made possible the settlement of the extensive farming districts on the prairies of that region, hitherto without access to any market.



Photograph courtesy Royal Canadian Air Force

WHERE THE FLIGHTS OVER CANADA BEGAN

Around the Chaudière Falls, within the city limits of Ottawa, cluster some of the great lumber industries of the Ottawa Valley (see text, page 392).

In the remoter districts, travel by water continues to hold undisputed sway, while traffic on the inland waterway of the St. Lawrence and the Great Lakes has increased with the growth of population and commerce.

Good roads also have been built throughout Canada, and the motor car has brought another delightful way of seeing the country.

### THE AIRPLANE EXTENSIVELY USED IN REMOTE SECTIONS

But one who has flown over the forests of Canada and has seen from the air its thousands of lakes and beautiful rivers would not willingly travel again by any other method. The routes generally follow the rivers, the natural highways of travel since the dawn of civilization.

During the past five years a widely extended use of the airplane has been developed in the remoter parts of the Dominion, where modern facilities for travel are nonexistent and the alternatives are the canoe in summer and the dog team in winter.

Its use by foresters for fire patrols and timber cruising is now well established, while the modern surveyor, with his aërial camera, flying at 5,000 or 10,000 feet above the ground, produces a complete photographic record of the country for many miles on each side of his line of

Photograph by Fairchild Aërial Surveys Co.

THE FAMOUS SHRINE OF STE. ANNE DE BEAUPRÉ, NEAR QUEBEC

This is the Lourdes of Canada, where many healing miracles are performed each year. The old chapel was destroyed by fire several years ago and a new building is rising on the same site (middle foreground).

flight, from which can be plotted, with simple traverses on the ground for control, all the natural features of the region.

No regular air routes have yet been established between the large cities in the Dominion. That phase of development must necessarily be slower than in Europe or the United States, where the population is denser, the traffic heavier, and climatic conditions less severe. To see Canada from the air to-day, one is dependent on the courtesy and hospitality of the services maintained by the Dominion and provincial governments and by commercial firms.

### OTTAWA IS SUPERBLY SITUATED

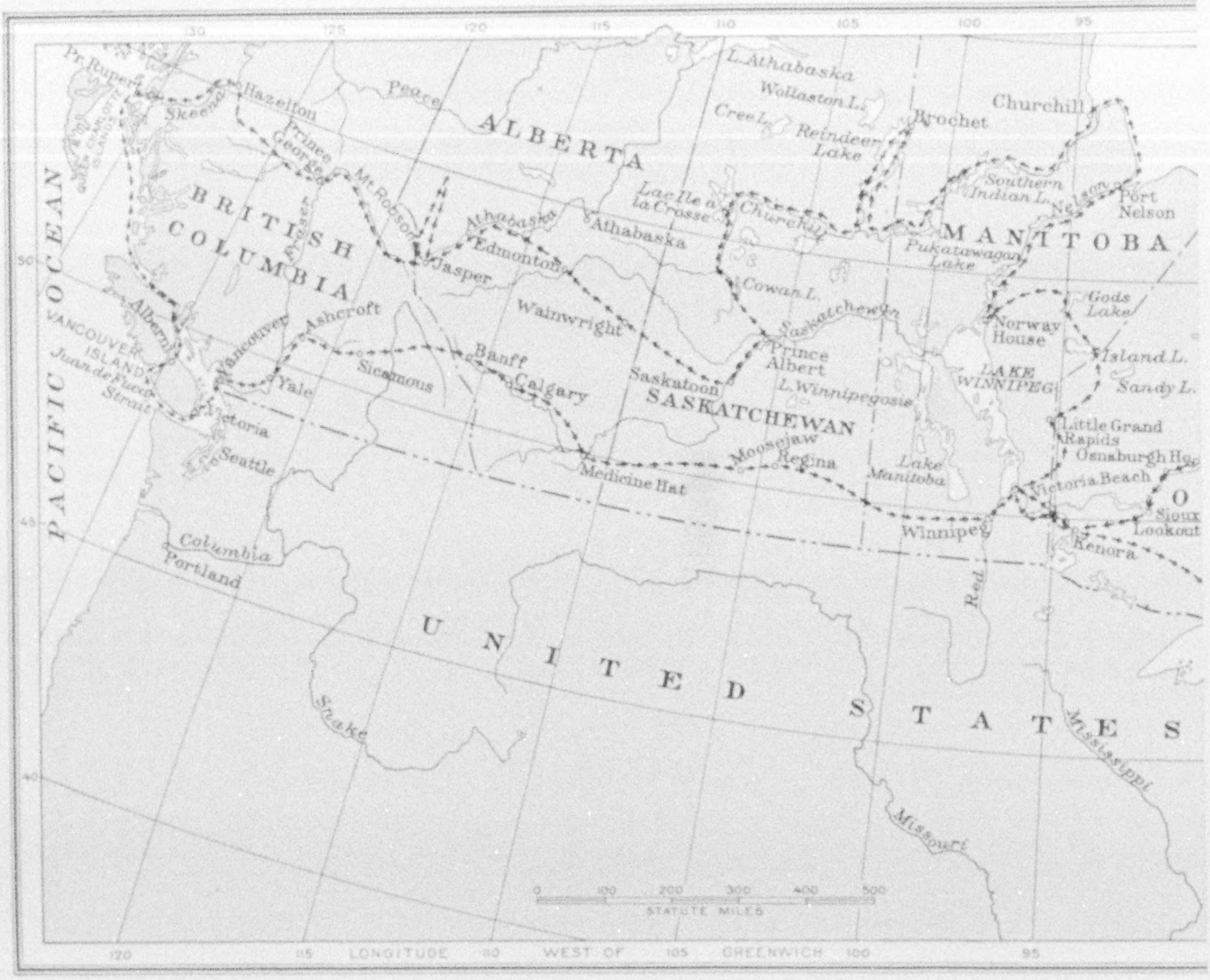
A series of such flights may fittingly begin at Ottawa, the capital of the Dominion (see map, pages 392-393).

Queen Victoria was well advised when she named Bytown, as it was then called, the seat of government, after confederation in 1867. Few capitals have a finer natural location. The houses of Parliament and surrounding government offices are built on a high bluff on the south bank of the Ottawa River, just below the Chaudière Falls.

To the north, forested spurs of the Laurentian Mountains extend almost to the river bank, while on the Ontario side of the river the city is surrounded by a fine farming country.

Since the days of Champlain, the Ottawa River has been the main highway from the sea to the West. Permanent settlement in the district, however, only began in the first decade of the nineteenth century.

After the War of 1812 the British Government, looking for a strategic route from the sea to the Great Lakes, which would avoid the international waterway of the St. Lawrence, decided on the con-




A SKETCH MAP OF CANADA, WITH ARROWS SHOWING THE ROUTES

The flights, which aggregated 10,000 miles and were effected in many types of planes, began at Ottawa, but comprehensive survey of the beauties and diversified interests of the Maritime Provinces, then turned Canadian Rockies, the wonders of British Columbia and Vancouver Island, then turned east again, and finally

struction of the Rideau Canal, which would give an alternative waterway from Montreal to Kingston, on Lake Ontario.

The canal was built by the Royal Engineers in the third decade of the last century and is still in use, a monument to their skill and workmanship.

With the opening of the canal the little settlement grew in importance, and was called Bytown after Colonel By, commanding the Royal Engineers. It soon became the headquarters of the thriving Ottawa Valley lumber industry.

Beautiful driveways and natural parks line the banks of Ottawa's rivers and the canal; and, though it is essentially a city of homes, many industries congregate there, attracted by the cheap water power developed at Chaudière Falls (p. 390).

The original Parliament Buildings were burned in 1916. A magnificent Gothic structure has risen on the old site, crowned by a central spire, Victory Tower, 385 feet high, built to commemorate Canada's part in the World War (see illustration, page 402).

FIRST FLIGHT BEGINS AT OTTAWA

Our first flight is eastward, in a Royal Canadian Air Force flying boat, en route to the Maritime Provinces for aërial survey.

As we rise from the Ottawa River, the city spreads before us like a map, the great waterway running from west to east and expanding above the Chaudière into Lake Deschênes.

Southward, narrow silver bands mark the courses of the Rideau Canal and River across the fertile lands of Ontario

Drawn by James M. Darley

FLOWN BY THE AUTHOR IN HIS AIR SURVEY OF THE DOMINION

the capital city of the Dominion. The author first journeyed to the Atlantic seaboard and made a hasty westward over forest, lake, and hill, viewed the rolling stretches of the Prairie Provinces, the grandeur of the completed the circuit at his home airdrome in Ottawa.

into the Rideau Lakes, 40 miles away, while from the north the swift waters of the Gatineau rush over their many rapids from the forests and hills of the Laurentian country to join the Ottawa.

As height is gained, the St. Lawrence River can be seen 60 miles to the south, and beyond it the United States. An hour's flight down the broad Ottawa brings us to the Lake of Two Mountains, and gradually the island of Montreal comes into view, with Mount Royal towering above the smoky haze of the city. The river divides into numerous channels at its junction with the St. Lawrence.

Turning southward and passing over Ste. Anne de Bellevue, we join the main stream and see, to the west, the power development at the Cedar Rapid and the Soulanges Canal, the second of the series leading to Lake Ontario. Then, taking our course over Lake St. Louis, we come to the Lachine Rapids, the first barrier to navigation from the Atlantic Ocean.

LOOKING DOWN ON CANADA'S GREATEST PORT

The city and harbor of Montreal now lie below us. The site was first visited by Jacques Cartier, and the first permanent settlement was made by Maisonneuve in 1642.

Few cities have greater natural advantages. At the head of ocean navigation, yet almost 1,000 miles from the Atlantic, it is a natural gateway for the commerce of the continent. Her merchants have not been slow to take advantage of the situation. Unlimited water power drives her industries' wheels, while an intelligent

Photograph courtesy Royal Canadian Air Force

LOOKING TOWARD MOUNT ROYAL, WHICH RISES IN THE HEART OF CANADA'S LARGEST CITY

Situated at the head of ocean navigation of the St. Lawrence River, a thousand miles inland, and at the confluence of that mighty stream with the Ottawa River, Montreal enjoys unrivaled natural advantages among Canadian cities. It is not only the chief commercial city of the Dominion, but the world's greatest wheat export center (see text, page 398).

Photograph by Fairchild Aërial Surveys Co.

THREE RIVERS FEEDS AMERICAN PRINTING PRESSES

This old town, about halfway between Montreal and Quebec, where the St. Maurice River empties into the St. Lawrence, probably manufactures more paper than any other city in the world (see text, page 398).

Photograph by Fairchild Aërial Surveys Co.

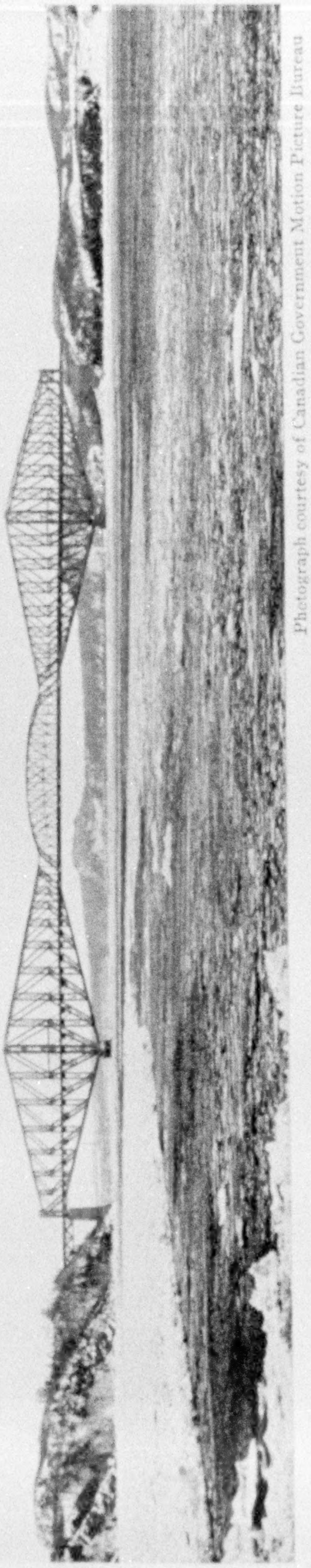
MONTMORENCY FALLS, ONE OF CANADA'S FINEST CATARACTS

At Montmorency Falls the river of the same name dashes over a cliff higher than Niagara Falls, just above its junction with the St. Lawrence, a few miles below Quebec. Kent House, the residence while in Canada of the father of Queen Victoria, can be seen on the high ground to the left of the falls.

Photograph by Fairchild Aerial Surveys Co.

SHAWINIGAN FALLS, QUEBEC, THE SITE OF AN IMPORTANT POWER DEVELOPMENT ON THE ST. MAURICE RIVER

Many prosperous industries have been attracted to this town by the advantages of cheap electric power.



Photograph courtesy of Canadian Government Motion Picture Bureau

THE BRIDGE WITH THE LONGEST SINGLE SPAN IN THE WORLD

Some 7 miles up the St. Lawrence River from Quebec city is one of man's greatest engineering feats—the Quebec Bridge, the largest structure of its kind in the world. It has a total length of 3,239 feet. Twice the bridge collapsed during construction. The present structure cost $14,831,742, but obligations incurred altogether in connection with the bridge bring the total cost to $22,640,573. Its completion enabled six railways to run simultaneously into Quebec from the south shore.

and thrifty people provide efficient labor for her factories.

Canada is one of the great commercial nations, and Montreal, the principal port for this trade, is the world's greatest wheat export center.

The city is bilingual, four-fifths of the population speaking French. It is of great interest historically, politically, and socially, and the seat of two noble institutions of learning—the University of Montreal and McGill University.

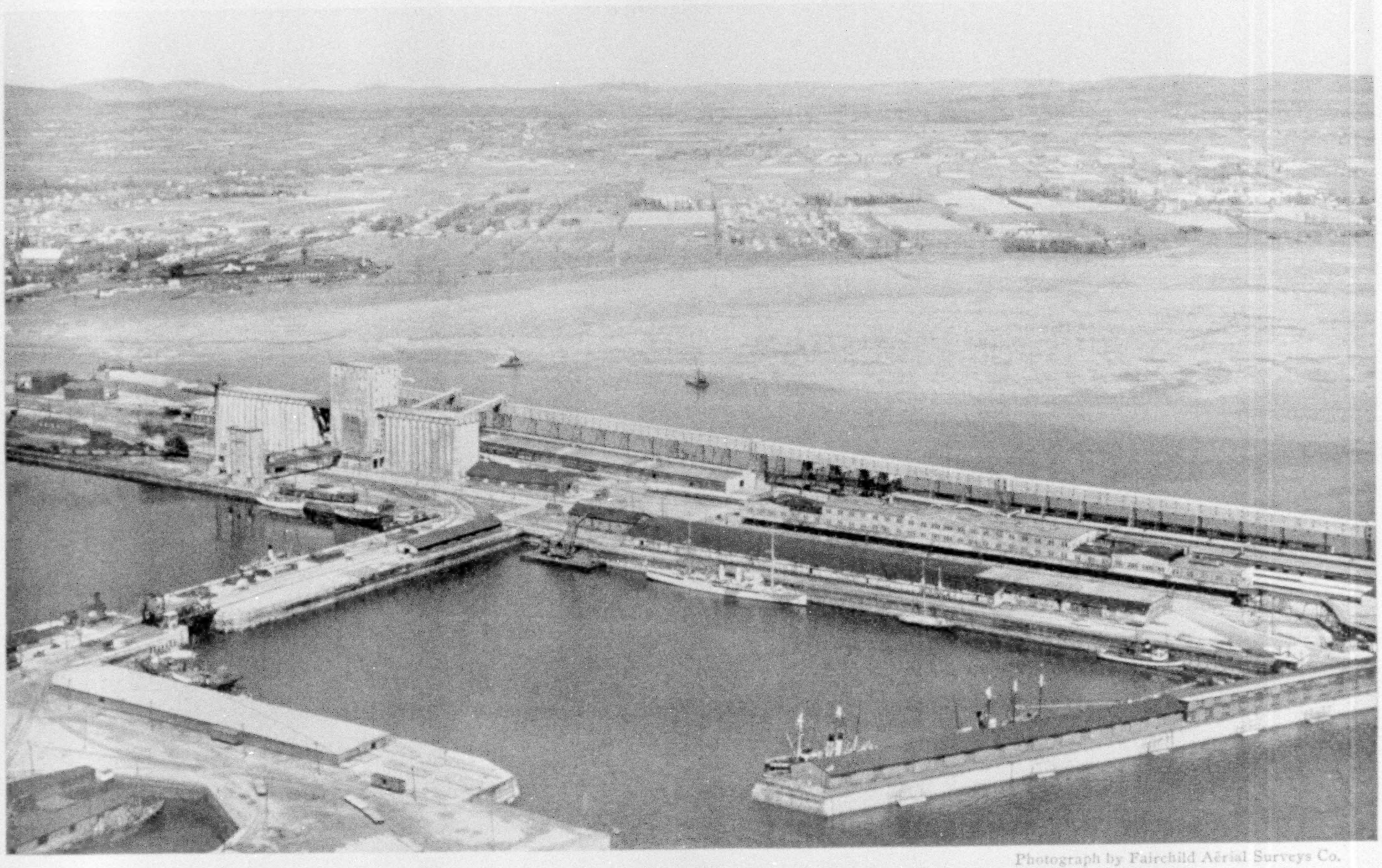
Founded on the southern slope facing the river, the city has spread out in both directions and now completely surrounds Mount Royal, which forms a natural park and playground in its center.

Our route follows the St. Lawrence east to Quebec. To the right we see the Richelieu River, once the chief trade and military route between Canada and the Hudson River by way of Lake Champlain. The whole district is of interest to the historian.

Farther east lies the splendid farming country of the Eastern Townships, originally settled by United Empire Loyalists driven from the United States after the Revolutionary War. Many prosperous industrial communities have grown up in the district, the greatest of which is Sherbrooke, just north of the New Hampshire and Vermont border.

On the northern bank of the St. Lawrence the Laurentian Mountains are never far away, and the numerous streams draining their valleys bring down to the river the rich harvests of the forests of Quebec. Three Rivers, halfway between Montreal and Quebec, at the mouth of the St. Maurice River, is the center of the largest pulp and paper industry on the continent (see page 395).

As we near Quebec the river narrows, the banks become steeper and the mountains approach on each shore. Seven miles above the city is the great Quebec Bridge,



Photograph by Fairchild Aërial Surveys Co.

THE SPIRIT OF NEW FRANCE IN NEW AMERICA

The old French capital of Quebec is usually thought of as concentrated romance and history. So it is; but an alive, modern spirit is also proved by the 1,000,000-bushel grain elevator and huge wharves of the outer basin, lining the mouth of the St. Charles River, whose valley is a hive of industry. Though Montreal has surpassed Quebec as Canada's chief port, the latter has a navigation season of about eight months and rail connections with all Canada and the United States.

the largest single span in the world, 1,800 feet between supports, thrown across the river at its narrowest point.

## QUEBEC, ONE OF THE NEW WORLD'S MOST ROMANTIC CITIES

No city of the New World has a more romantic history than the old French capital, nestling below the cliffs of the Citadel, and the Plains of Abraham, where was finally decided, in 1759, the great struggle between France and England for supremacy in the Western Hemisphere (see illustration, page 419).

In a single morning's flight we have passed over three Canadian cities, each essentially different, but with one thing in common—magnificence of natural setting.

The St. Lawrence at Quebec narrows for the last time, and the cliffs on which stands the Citadel, at whose feet and around whose shoulders gathers the modern city, jut out into the river as if to bar all further progress from the sea. The southern shore is also precipitous, and the St. Lawrence flows through a narrow gorge to meet the ocean.

To the east of the city lies the fertile plain of the St. Charles River, encircled by the high timber-clad Laurentian Mountains, while in the river, below the city, rests the green Isle of Orleans. On all sides are prosperous settlements, and the scores of church spires proclaim the piety of the French-Canadian people.

We have now been three hours in the air and have traveled some 260 miles. Our pilot brings us back to mundane things by suggesting a bite of lunch while he obtains an additional supply of fuel.

A landing is made in the mouth of the St. Charles River. After luncheon and a stroll on Dufferin Terrace, overlooking the river and affording a magnificent prospect, we again embark and proceed eastward (see illustration, page 403).

After passing the Isle of Orleans the river gradually expands into a broad stream from 10 to 20 miles wide. The northern shores continue bold and mountainous, though here and there one sees little valleys and plateaus of cultivated land. To the south there is a wide belt of farm land between the river and the low, forest-crowned hills.

Everywhere one notes the importance of the forest industries in the Province of Quebec. These, together with her farms, are the mainstay of her prosperity. At Rivière du Loup we bid farewell to the great river for the time being and, turning south, proceed inland.

Since leaving Quebec we have been climbing steadily and have now reached the higher altitude necessary to give a larger gliding radius while flying over the relatively dry country between the St. Lawrence and Lake Temiscouata, 30 miles inland. Our route follows, roughly, the railway line running over the height of land into the Province of New Brunswick.

For half an hour, as we look down, we instinctively thank the makers of our engine for their care, as there are few places suitable for landing a flying boat in this stretch. Soon we are over the lake, however, and again breathe freely. It is a long, narrow, winding stretch of water, draining eventually into the upper waters of the St. John River, which we reach at Edmundston, on the border between Maine and New Brunswick, the center of a thriving lumber industry.

## A NATURAL WATERWAY THROUGH THE HEART OF NEW BRUNSWICK

New Brunswick, which has an area of 28,000 square miles, is a generally fertile province, though only a small part of it is as yet under cultivation. It is primarily a forested country of low hills and valleys. Numerous rivers provide access to the forests of the interior, in which are found some of the most attractive hunting and fishing districts in the Dominion.

As we near Fredericton the valley widens, settlement increases, farming becomes predominant again, and the forests recede.

The St. John River forms a natural waterway through the heart of the province, though from a flying point of view it is not what it might be, as at certain seasons of the year the river is full of logs and, as our pilot says, in the event of engine trouble we might as well land on a plowed field.

Fredericton, the capital of the province, is reached in the late afternoon, and we land to refuel and rest for the evening, somewhat stiff after our long flight and

A WILD LIFE SANCTUARY IN THE PROVINCE OF QUEBEC

Birds nesting on the narrow shelves of rock in the steep cliffs of Bonaventure Island, off the Gaspé coast, in the Gulf of St. Lawrence. More than 7,000 gannets alone make this rock their summer home (see text, page 419).

Photograph courtesy Royal Canadian Air Force

LOOKING DOWN ON PARLIAMENT HILL, OTTAWA

The Houses of Parliament crown a high bluff on the south shore of the Ottawa River, just below the Chaudière Falls. A lofty central spire is the outstanding architectural feature of the magnificent Gothic structure which replaced the original buildings burned ten years ago (see page 392).

Photograph by Fairchild Aërial Surveys Co.

QUEBEC ON HER ROCKY HEIGHTS

In the foreground are the magnificent promenade, Dufferin Terrace, and the Château Frontenac of the upper city. The Citadel crowns the cliffs above the St. Lawrence, and to the right is the Grande Allée, leading through the upper city to the Plains of Abraham, made famous by the mortal struggle in 1759 of the gallant rival commanders, Wolfe and Montcalm (see, also, illustrations, pages 399 and 419).

Wide World Photograph

"THE BATTLE OF QUEBEC"

The Gibraltar of America also hopes to become its St. Moritz. Every facility is provided for winter sports, from snowball battles on snow-covered slopes above the St. Lawrence to toboggan slides, ski jumps, skating and curling rinks. Visitors may also watch expert ski jumpers from Norway, and drive around in sleds pulled by Alaskan dog teams.

Wide World Photograph

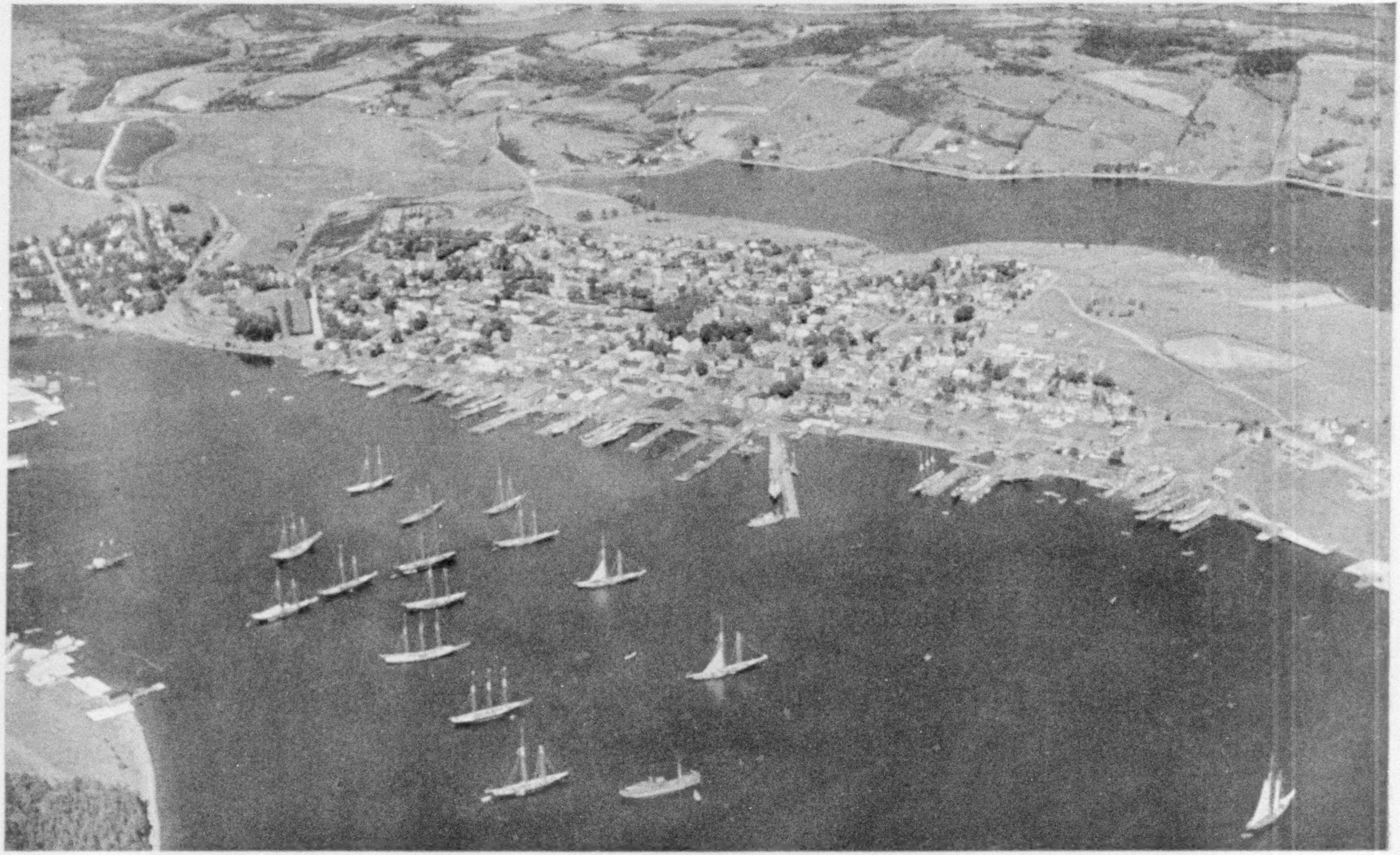
ONE MILE OF TOBOGGAN DELIGHT

This six-track Park Slide is one of the most famous in the Dominion, and accounts in great part for Montreal's popularity as a winter sport center.

Photograph by Fairchild Aërial Surveys Co.

GRAND' MÈRE, QUEBEC, ON THE ST. MAURICE RIVER

The power generated here not only supplies Montreal and its contiguous district with electricity, but also runs the pulp and paper mills of the Laurentide Company (see, also, text, page 425).



Photograph courtesy Royal Canadian Air Force

THE HOME PORT OF A FAMOUS FLEET OF FISHING SCHOONERS

Lunenburg, a small seaport southwest of Halifax, was settled in 1752 by German immigrants. It has a good harbor and exports quantities of fish taken on the Grand Banks of Newfoundland (see text, page 417).

Photograph by Byron Harmon

IN THE VALLEY OF THE HANGING GLACIERS, BRITISH COLUMBIA

Mount Sir Donald, named for Lord Strathcona, is more than 10,000 feet in height, and is one of the outstanding features of Glacier Park, in the Selkirks. Even in a region of mountain grandeur, its massive summit and the glaciers clinging to its cliffs make it conspicuous.

Photograph by H. Pollard

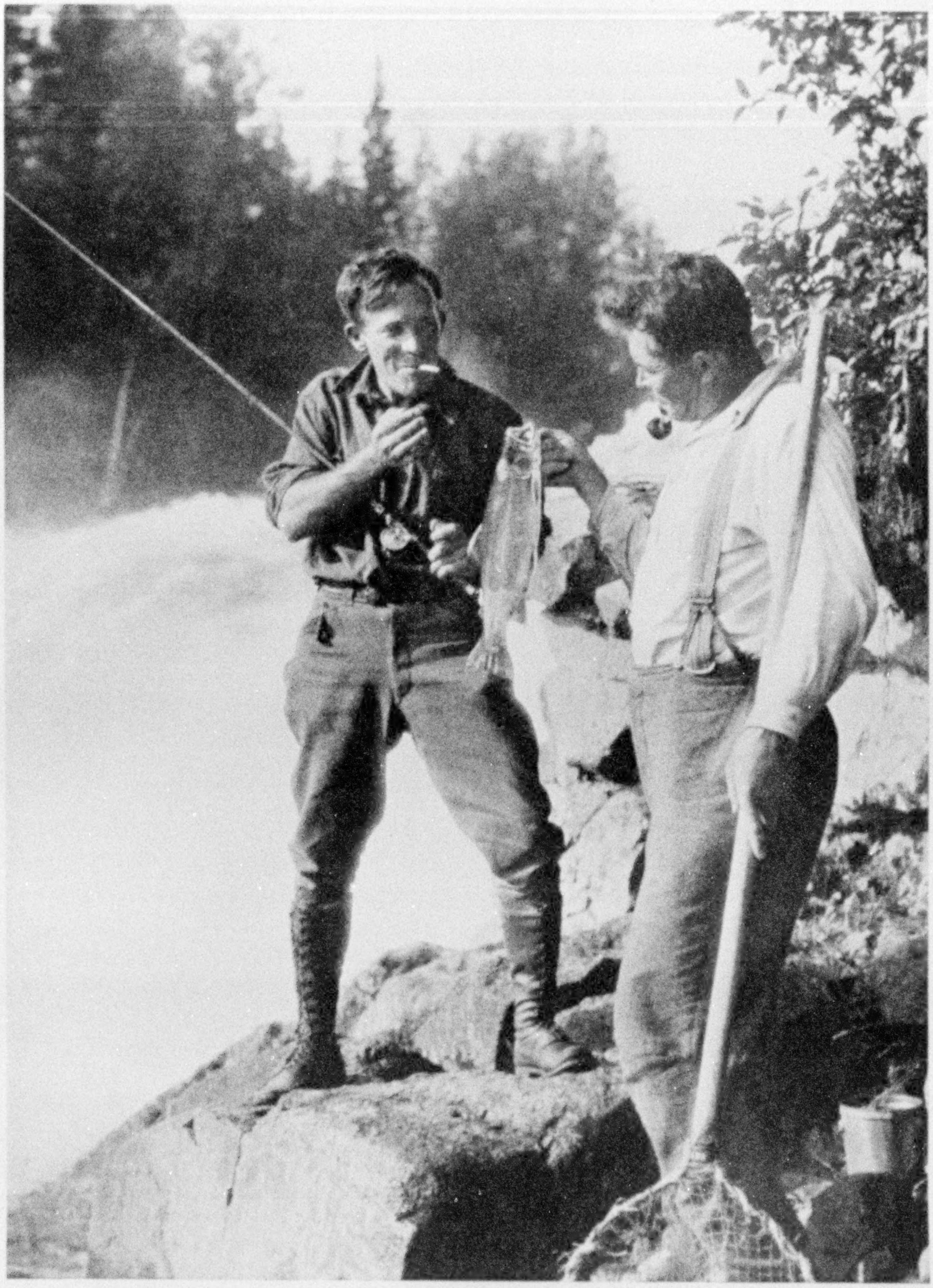
CLIMBING MOUNT SCHAFFER: BRITISH COLUMBIA

This is one of the numerous peaks of the Bow Range, in the Lake Louise region, lying between lakes O'Hara, one of the most beautiful of the cloudland tarns, and McArthur, glacier-fed and iceberg-filled. It is more than 8,000 feet in height.

Photograph by Edith S. Watson

BAGGING ONIONS ON A TRUCK FARM NEAR WINNIPEG

Winnipeg is a city of many pickle factories, which obtain their vegetables from truck farms, many of them owned and most of them "worked" by women, situated in the alluvial lands that form the right and left banks of the Red River. The seeds for these clean, silvery white onions are annually imported from Italy.



Photograph by H. Armstrong Roberts

THE REAL MAKINGS OF A FISH STORY

The famous speckled trout of the equally famous Nipigon River, in Ontario, are known to the Izaak Waltons of two hemispheres. This is a three-pound beauty, but specimens of four and five pounds are common. The river itself, the largest flowing into Lake Superior, swirls with cataracts, of which Virgin Falls (in the background) is the most spectacular.

Photograph courtesy Royal Canadian Air Force

A GROUP OF ROYAL PEAKS IN THE CANADIAN ROCKIES

Mount King George rises in the center, a magnificent snow-clad peak; Prince Edward, named after the Prince of Wales, is the sharp peak to the right, and Princess Mary, the smaller peak to the left.

Photograph by Trio Photograph and Supply Co.

SPROAT LAKE FROM KLEETZA LODGE, VANCOUVER ISLAND

Most of the lakes and streams of Vancouver Island contain trout, chiefly rainbow or cutthroat, and Sproat Lake is easily accessible from the near-by tourist resort of Alberni.

Photograph courtesy Royal Canadian Air Force

LOOKING WEST DOWN BOW VALLEY, WITH MOUNT TEMPLE ON THE LEFT AND CASTLE MOUNTAIN ON THE RIGHT

The Canadian Pacific Railway can be seen threading its way through the valley to the Pacific.

Photograph by Harold Fleming

THE OAT HARVEST ON VANCOUVER ISLAND, BRITISH COLUMBIA

Canada's fertile soil has made her a Land of Promise for thousands of immigrants from overseas and the United States, but the Dominion is still population-hungry. Agricultural settlers, backed by muscle and brains, are vitally needed to open up vast extents of virgin land, and to help carry the burden of the national overhead.

Photograph by Newton William Emmens

MOUNT STEPHEN, FROM THE SLOPE OF MOUNT FIELD

This immense peak in Yoho Park, British Columbia, reaches a height of 10,485 feet. In it is a rich deposit of silver, the mine being known as the Monarch. The light spot on the face of the mountain immediately above the shed across the railway track is an entrance to the mine. The mill stands at the base of the big rock slide, and the camp is in the trees on the lower side of the railway.

sleepy from the constant rush of air and noise of the engine.

Here we bid good-bye to the Vickers *Viking* amphibian boat, which has brought us from Ottawa, and embark on an H. S. 2. L flying boat sent by the R. C. A. F. from Halifax to pick us up and take us yet another stage on our way.

The course lies down the St. John River to the Bay of Fundy, which we reach at the city of St. John.

The first British settlement in the Province of New Brunswick was in 1762, and 21 years later St. John was founded by the United Empire Loyalists from the United States. This is a thriving seaport, the eastern terminus of the Canadian Pacific Railway and the chief center of the export trade for the lumber and agricultural produce of the province.

### A CATARACT THAT REVERSES ITSELF

Just above the city are the famous Reversing Falls, formed by a barrier of rock across the river, over which, when the tide is low, rush the waters of the St. John. When the tide is high the waters of the Bay of Fundy force the river back upon itself and the sea rushes into the basin above the city (see page 421).

We have now reached the Atlantic and the way lies straight across the Bay of Fundy to the Province of Nova Scotia, 40 miles away.

The peninsula of Nova Scotia, with its northward extension, Cape Breton Island, is about 400 miles long and from 50 to 100 miles wide.

Flying up its center, we see that a ridge divides it roughly into two slopes; that facing the ocean is generally rocky, barren, and open to the sweep of the Atlantic storms, while the other, facing the Gulf of St. Lawrence and Bay of Fundy, consists for the most part of arable, fertile plains and river valleys.

On the Atlantic coast are many well-sheltered harbors providing safe anchorage for the fleets of the fishing communities, so vital to the prosperity of the province. Nearing the Atlantic coast on our way to Halifax, we pass over Lunenburg, the home of one of the largest fishing fleets on the Newfoundland Banks; then over the picturesque Bays of Mahone and St. Margaret to the harbor of Halifax.

The history of Acadia, as the French province was known, dates back to 1604. Port Royal, now Annapolis, was the seat of the French Government, and that old town has had many vicissitudes. It was first captured by the British in 1628, but receded to France in 1632. In 1654 the province was again taken, but restored to France in the following year. In 1710 it was finally captured by an expedition from New England.

Halifax itself was founded in 1749 by British emigrants, and since then it has been a naval base of great strategic importance. Its magnificent harbor commands the North Atlantic trade routes to Europe. During the Revolutionary War and the War of 1812 it was a center of naval activity, and again during the World War its harbor was the gathering point for convoys of troops and store ships from the whole Atlantic coast as far south as Newport News, Virginia (page 424).

The city is built on a tongue of land between the North West Arm and the harbor proper. Bedford Basin, beyond the Narrows, provides an anchorage where great fleets may lie sheltered from Atlantic storms.

There is no more delightful place for a summer or autumn holiday than the Nova Scotia Peninsula. Fishing and hunting abound and the province is well served by railways, coasting steamers, and good roads. It is essentially a maritime province, with a seafaring population, and in the days of wooden ships its vessels were to be seen in every port of the world. The founder of the great Cunard Company was born here, and the steamer *Royal William*, the first to make the transatlantic passage from Canada to England, in 1833, sailed from Pictou.

### SYDNEY, LIKE HALIFAX, HAD ITS PART IN THE WORLD WAR

Our next flight is to the center of the coal and iron industry, at New Glasgow and at Sydney, Cape Breton Island. Along the rugged Atlantic coast, deeply indented by many fine harbors, and over the Strait of Canso we fly.

To the north lie the counties of Victoria and Inverness, remote from the ordinary routes of travel. Fishing and farming communities are dotted along the coast

Photograph by William D. Boutwell

LOOKING DOWN INTO THE DEEPEST PIT OF THE THETFORD ASBESTOS MINES

The black dots near the boxes are miners. Canada and South Africa share major honors in the production of the world's supply of the fibrous mineral.

Louisburg, farther around the coast, was founded by the French in 1713. It was captured in 1745, restored to France, and finally taken in 1758. Of its formidable fortifications little remains to-day, though it is a busy export town for the shipment of coal from the neighboring mines.

We must now retrace our steps back over the beautiful Bras d'Or Lake, stretching through the heart of Cape Breton Island,* and along the northern coast of Nova Scotia, past Antigonish, to New Glasgow.

### PRINCE EDWARD ISLAND, A DELIGHTFUL HAVEN

Our line of flight now crosses Northumberland Strait to Charlottetown, the capital of the Province of Prince Edward Island, 150 miles long and from 4 to 34 miles wide. Its rich soil and red sandstone formations give it a distinct topography.

and their rivers provide the finest salmon fishing. Canada's fisheries are second to none. The cool waters on her coasts teem with the best food fishes.

Sydney Harbor, like Halifax, is a magnificent stretch of water, well sheltered from the sea, and here, too, during the World War were gathered great convoys of ships leaving the Gulf of St. Lawrence for the transatlantic passage. It was also the scene of much naval activity, and an air station was built here in 1918 and manned by a squadron of the United States Naval Air Service.

There are no great elevations here, and the climate of the island is tempered by the surrounding waters and is free from the rigors of Atlantic storms. Its rolling plains, numerous rivers, and sheltered harbors offer great inducements to the pursuit of agriculture and fishing.

The island is a delightful summer resort, with splendid salt-water bathing. Its picturesque countryside makes it a haven of rest for many tired city folk.

* See, also, "The Charm of Cape Breton Island," by Catherine Dunlop Mackenzie, in the NATIONAL GEOGRAPHIC MAGAZINE for July, 1920.

Photograph by William D. Boutwell

A BUSY MARKET UNDER THE GRIM CITADEL WALLS OF QUEBEC

The country folk come up to Quebec on market day with their produce in skiffs. The ornamental umbrella on the rampart in the background is a bandstand on Dufferin Terrace. Above it is the gray wall of the Citadel (see, also, illustration, page 403, and text, page 400).

Over the broad strait which separates it from the mainland, we pass again to the northern coasts of New Brunswick and soon reach the wide entrance of the Miramichi Bay. The Miramichi River reaches far inland, into the heart of the forests, and at Newcastle and Chatham great sawmills and pulp mills present evidence of the activity of the lumber trade in the province.

Still keeping a northward course, we cross the mouth of Chaleur Bay, reaching far inland, between Gaspé Peninsula and New Brunswick. This bay was named by Jacques Cartier on his first expedition. All around its shores are prosperous fishing and lumbering towns and villages. Bathurst and Campbellton are its big timber-shipping ports. Flowing into it are famous salmon rivers—the Restigouche, the Matapedia, the Cascapedia, and Bonaventure.

The Gaspé Peninsula is mountainous; the high interior plateau is as yet little developed, and, in the remoter districts, barely explored.

The scenery along the coast is magnificent. At Bonaventure Island, a great pile of rock, a bird sanctuary has been created by the Dominion Government. Myriads of wild fowl congregate here during the nesting season. Its fisheries have been famous for centuries and the lumber industry also is of growing importance.

The picturesque villages of Gaspé and Percé are delightful Old World spots, remote and as yet unspoiled. Gaspé Basin is a great natural harbor, where gathered the great armada which carried the first Canadian contingent overseas in 1914.

We finally bid a reluctant farewell to the Maritime Provinces—a delightful region by the sea, a paradise for the yachtsman, motorist, hunter, and fisher-

Photograph by Fairchild Aërial Surveys Co.

ALONG THE STE. ANNE RIVER NEAR QUEBEC

The French system of settlement, with homesteads along the line of the highway and long, ribbonlike farms stretching back on either side, can clearly be distinguished both in the foreground and in the cleared country higher up the hillside.

man, whose people have proved their sterling qualities and whose sons are found in high places all over the continent. During the great rush for the development of the West, these provinces have been more leisurely in their progress. Their geographical position, resources, and the qualities of their people, however, assure them their rightful share in the prosperity of the Dominion.

### ATTEMPT TO DOMESTICATE MUSK OXEN TO BE MADE ON ANTICOSTI ISLAND

Our destination is now the Natashkwan River, far down the north shore of the Gulf of St. Lawrence, where an exploratory survey of the timber resources of the interior is being undertaken by the Forestry Service of the Province of Quebec.

From Gaspé our route lies across the mouth of the St. Lawrence to Ellis Bay, the principal harbor on the island of Anticosti; thence across the northern channel and eastward along the coast of Natashkwan (see map, pages 392-393).

Anticosti, which is 140 miles long and has a maximum width of 35 miles, is owned by M. Gaston Ménier, of Paris, who takes keen interest in its development, the conservation of its wild life, and the improvement of the living conditions of its inhabitants. On landing we were made heartily welcome and treated as honored guests, with true French hospitality.

The island has been turned into a large game reserve. Red deer are plentiful, a herd of caribou has been introduced, and it is proposed to add a herd of musk oxen from the Arctic with a view to their eventual domestication.

Fish, furs, and pulp wood are the main

Photograph courtesy Canadian Government Motion Picture Bureau

THE REVERSING FALLS, ST. JOHN, NEW BRUNSWICK (SEE TEXT, PAGE 417)

The St. John River, draining an area of 26,000 square miles, discharges its flood into St. John harbor through a rocky gorge famous in Indian lore. The famous Reversing Falls is so called because at high tide the water of the harbor, being above the level of the river, has a perceptible drop upstream. The occurrence is unique and is considered one of the natural wonders of the world.

resources of the island. The small streams teem with salmon and there are numerous lakes well stocked with trout.

A standard-gauge railway has been built down the center of the island for some 40 or 50 miles. It is unique, in that no conductor is carried on the train and no fares are collected!

Lying athwart the entrance to the St. Lawrence, the island, in the days before steam navigation, was a notoriously dangerous place, and many fine ships have been wrecked on its shores. Now, however, splendid lighthouses have been built and connected by telegraph and cable and the waters made comparatively safe.

### INTO UNKNOWN COUNTRY

From Ellis Bay our way lies northward across the 25-mile stretch separating Anticosti from the north shore. Striking Mingan Islands, we pass eastward along the rugged and inhospitable coast to the mouth of the Natashkwan River.

During the next two weeks we have an opportunity of exploring what is practically an unknown country in the interior along the river valleys to points 150 miles or more from the coast.

The district is part of the great Laurentian Plateau, or Canadian Shield, stretching across the northern part of the continent, on which grow the great forests of vital importance to the prosperity of the Dominion. The approaching exhaustion of the more accessible timber and the increasing demands of the pulp and paper industry are now forcing the development of outlying regions (see pages 437-438).

There are no roads or railways in this district, though a government telegraph line provides means of communication

Photograph courtesy Canadian Government Motion Picture Bureau

OPERATORS PACKING SARDINES AT BLACKS HARBOR, PROVINCE OF NEW BRUNSWICK

The sardine industry on the Atlantic coast is an important contributor to the wealth of Canada.

along the coast and steamers ply up and down during the summer months. In winter the mail is carried as far as Belle Isle, from the end of the railway at Murray Bay, a distance of 800 miles, by dog team.

### THE AIRPLANE SPEEDS UP TIMBER SURVEYS

This is not an ideal country for flying operations. There is little shelter along the coast, and the rivers are rapid and broken by many falls, which, though admirably suited for the development of water power, do not tend to provide good facilities for landing aircraft. In the interior, however, there are many lakes, which make flying pleasant and safe.

Our experience in this district while working in coöperation with the exploring and timber-cruising parties showed the advantage of aircraft for this work. Preliminary surveys of a very large area were made in a few weeks, whereas by canoe the same work would have taken an infinite amount of labor and time.

The Natashkwan and other rivers on the north shore are famous for their salmon. Along the coast, however, the principal industry is cod-fishing.

### THE WESTWARD FLIGHT BEGINS

Time passes, however, and our slogan must now be Westward Ho! The route lies over the Laurentian Plateau, across the area of pre-Cambrian rocks, estimated to cover 2,000,000 square miles, or more than half of Canada. Glacial action has denuded much of this region and conditions are not generally favorable to

Photograph courtesy Royal Canadian Air Force

OVER THE EVANGELINE COUNTRY

The pleasant Annapolis Valley is famed for its apple orchards. The aërial photographer's view is of Bridgetown, Nova Scotia.

agriculture, but sufficient soil fortunately remains to support forest growth.

In many valleys softer rocks have produced an abundance of soil; there beautiful cultivated farm lands lend a pleasing contrast to the surrounding forest. Elsewhere the sediments deposited in the basins of glacial lakes have reduced the inequalities of the surface and produced large areas of arable land, such as the great clay belt in northern Ontario and Quebec.

This region contains a remarkable variety of valuable minerals. Iron, copper, nickel, cobalt, silver, gold, platinum, lead, zinc, arsenic, pyrite, mica, apatite, graphite, feldspar, quartz, corundum, talc, actinolite, the rare earths, ornamental stones and gems, building materials, etc., are all found here and are or have been profitably mined.

A large part of the area has not yet been prospected and new discoveries of mineral wealth are constantly extending the mining industry in Canada.

The first stop on the westward flight is

Photograph courtesy Royal Canadian Air Force

THE ANCIENT CITADEL IN THE HEART OF HALIFAX, NOVA SCOTIA

When Boston merchants complained of the French sea raiders operating from this base, Colonel Edward Cornwallis brought settlers, in 1749, to the site of what was even then designated as "a military key to the North American colonies," and a stockade against the French and their Micmac Indian allies arose on Citadel Hill. Upon the nucleus of the present fort, dating from 1794-7, were employed negro insubordinates from Jamaica.

at Clarke City, the scene of a large hydroelectric development and pulp and paper mills.

THE OLDEST SETTLEMENT IN CANADA LACKS RAIL CONNECTIONS

After refueling we proceed to Tadoussac, the oldest settlement in Canada, founded by Jacques Cartier in the early days of the sixteenth century. Built where the Saguenay enters the St. Lawrence, it is still beyond the reach of railways, but is well served in summer by the passenger boats of the Canada Steamship Lines.

Golf, tennis, fishing, bathing, and boating provide amusement for the many summer visitors to the famous waterway of the Saguenay. This is a gigantic cleft in the Laurentian Mountains, navigable for oceangoing steamers as far as Chicoutimi, about 70 miles upstream.

The flight through the gorge, past Capes Trinity and Eternity, is unforgettable. The mountains tower many hundreds of feet on each side, while in the gorge lie the deep, still waters of the river.

The famous white porpoises mentioned by Jacques Cartier haunt the stream, and near the wharf huge salmon may be seen in a clear, shallow pool.

The Saguenay drains an inland basin of more than 35,000 square miles, surrounding Lake St. John, into which flow four great rivers—the Peribonka, the Mistassibi, Mistassini, and Ashuapmuchuan. Their combined waters flow over

the Grand Discharge to form the Saguenay River, which falls 300 feet from the lake to the sea within 50 miles, thus providing sites for one of the greatest hydroelectric developments in the world. When complete, 1,500,000 horsepower can be generated at three power stations.

Here again is a happy hunting ground for the sportsman. Moose and caribou abound, as well as all furbearing animals, while the rivers teem with fish. Lake St. John is the home of the famous ouananiche, gamest of all, a land-locked salmon.

The Forest Service of the province is now our host. The flight to Chicoutimi and Roberval on Lake St. John, where its main base is situated, has been made on one of its flying boats, a type which has been used for four years in the survey of remote forest areas to which access by canoe is difficult and tedious.

In Quebec, as elsewhere, the air is being used to unlock the secrets of the remote northland.

Photograph by R. R. Sallows

CHILDREN AND SQUASH GROW UP WITH THE COUNTRY

Canadians are quick to disagree with Voltaire, who dubbed the Land of the Maple Leaf "a patch of snow," and with Kipling, who emphasized its supposedly year-long Arctic qualities by the romantic title of "Our Lady of the Snows." The climate of southern Canada rivals that of the United States and Europe in its combined advantages for both agriculture and man, and gives rise to farming industries of extraordinary variety and value.

### A MODEL TOWN WITH EVERY OUTDOOR DIVERSION

Our flight now lies southward over the Laurentides Park, a vast game and forest reserve established by provincial authorities. At La Tuque we swing westward into the valley of the St. Maurice, one of the great lumbering and power streams of the province, and follow it downstream to Grand' Mère and Shawinigan Falls. The development of hydroelectric power has led to the establishment at these towns of pulp and paper and electrochemical industries.

At Grand' Mère one company has built a model town, with delightful gardens, picturesque walks and drives. Its lucky inhabitants can enjoy the finest golf, good boating, hunting, fishing, and tennis, with skiing and skating in winter, and good roads everywhere.

The next stage is flown in a seaplane

Photograph by Dr. Gilbert Grosvenor

OVERLOOKING THE BRAS D'OR LAKE FROM BEINN BHREAGH, CAPE BRETON ISLAND, NOVA SCOTIA

This was the favorite view of the late Alexander Graham Bell, inventor of the telephone, whose summer home is immediately below the crest of the hill, near the water's edge. While Dr. Bell was born in Scotland and is buried in Canada, he was an American by choice. His grave is marked by the small clump of cedars to the right of the tall tree in the foreground. At the extreme right may be seen a portion of the famous tetrahedral tower used in the inventor's many experiments in aëronautics.

of the Fairchild Aërial Surveys Company, from Lac à la Tortue, two miles from Grand' Mère, straight across country by the Mattawin River into the Lièvre watershed to Mont Laurier.

Aircraft of this company are working on the preliminary survey of a new railroad projected through northwestern Quebec, from the upper waters of the Gatineau and the Lièvre rivers, straight across the headwaters of the Ottawa, to the Canadian National Railway at Amos.

This new line will tap the farming country in the river valleys, the great forests on the headwaters of the Ottawa, and, at its western end, the new mineral area extending west from the Province of Ontario across the Quebec boundary.

It is significant of the change which the introduction of air methods has already made in civil engineering that the preliminary surveys for each of the three railways projected into the new mining area have been made by air.

### THE FAMOUS NORANDA CLAIM

After a flight over the silent forests on the headwaters of the Ottawa, we enter the mineral belt and notice signs of human activity. Smoke from prospectors' camps rises in little blue clouds everywhere. We land on Lake Osisko, at the famous Noranda Claim. This is one of the most spectacular discoveries ever made in Canada. One can follow the vein of bronze-colored rock many hundreds of feet. It is a smelting proposition and must wait for development until the railway reaches the mine.

After lunch at the log cabins of the mining camp, we again take the air and, passing southward, reach Lac des Quinze, on the Ottawa River, so called from the fifteen rapids between it and Lake Timiskaming, where power is now developed for the mining district.

At the head of the rapids is Angliers, the present terminus of the Canadian Pacific Railway line running into northwestern Quebec. Here we again enter a settled farming country surrounding the eastern shore of Lake Timiskaming and stretching north into the clay belt running through northern Ontario and Quebec for many hundred miles. It is a country still in the making—a generation ago almost an unbroken forest, now cleared, with prosperous farms adding to the wealth of the Dominion.

The majority of the settlers, both in Quebec and Ontario, are French-Canadians. Few people are more suited naturally to pioneer work of this kind, for they are expert lumbermen, born, one might say, ax in hand, and good farmers. In summer they clear their land and cultivate it, while the lumber and mining camps provide a demand in the winter months for the labor of themselves and their teams and a market for their products.

As we cross Lake Timiskaming we leave behind the Province of Quebec, of whose wonders we have seen all too little, although our flights have shown us something of the diversity of its resources and industries.

What we have seen makes us long to know more of its people and study them at closer range. A wonderful inheritance is theirs. From a few thousand at the time of the conquest, there are to-day almost 2,000,000 French-Canadians, and Quebec is in many ways the most progressive and thriving province in the Dominion. A simple, God-fearing, conservative, and industrious race, they cling to the faith and speech of their forefathers, thus preserving their racial inheritance, while under British institutions and the widest autonomy they are loyal to the Crown.

### COBALT DISTRICT IS A SERIES OF MINING CAMPS

Our next stopping place is Haileybury, on the Timiskaming and Northern Ontario Railway, owned and operated by the government of the province and built as a colonization line into the north. During its construction the immensely wealthy silver country of Cobalt was discovered, and the whole district now is a series of mining camps.

Haileybury is the headquarters of the only regular air passenger, mail, and express service in Canada—the Elliot-Fairchild Air Service, Ltd., operating daily to the gold field in the Rouyn area.

We now meet the Air Service of the Province of Ontario, formed in 1924 as a division of the Forestry Branch. It has

Photograph courtesy Royal Canadian Air Force

"BLUENOSE" WINS!

The finish of the International Trophy Race for fishing schooners, between the Lunenburg, Nova Scotia, champion *Bluenose,* and the pride of Gloucester, Massachusetts, *The Mayflower.*

a fleet of more than 17 seaplanes, their operations being confined to that part of the province lying north of Lake Nipissing and the French River. These planes play an indispensable part in the fire-protection system of the province, where distances are great, communications often poor, and the population scattered.

Sault Ste. Marie is the main base and the chief operating stations are at Sudbury, in the eastern district, and Sioux Lookout, in the western. To Sudbury the route is over the Cobalt mining district, a desolate, rocky country where the timber has all been burned. Everywhere one sees the shafts and buildings of the many mines.

One passes with relief to Lake Timagami, one of Canada's loveliest lakes, whose surface is broken by many islands and with deep bays reaching far into the forest. The shores are bold and on them grows a magnificent stand of white pine.

The Ontario Air Service has a subbase here, on Bear Island, the Forestry headquarters, and during the season of hazard one or more flying boats guard the forest reserve from the ever-present fire menace (see illustration, page 431).

A fire ranger flies with the pilot and mechanic and the plane carries a light gasoline fire pump, with 1,000 feet of hose, to combat fires detected in their incipiency (see illustration, page 433).

Photograph courtesy Canadian Government Motion Picture Bureau

CANADA'S TUNA FISH ON CANADA'S ATLANTIC COAST

Horse and derrick are employed in landing the giant tuna fish at the wharf at Hubbards Cove, Nova Scotia.

From Timagami our way lies westward over the forest reserve toward Sudbury. Long before we reach the town we see the smoke from the chimneys of smelters of the copper-nickel mines.

### TO THE FUR EMPORIUM OF THE NORTH COUNTRY

We are fortunate in receiving here an invitation from the provincial authorities to accompany an expedition to Moose Factory, far to the north. Two flying boats are going and the director of the Provincial Air Service places seats in one of them at our disposal.

First, flying southwest, Lake Huron soon becomes visible, as we gain height—a silver streak on the southern horizon. On reaching its shore we swing west, then north in a wide circle, and after three hours land at Biscotasing.

After lunch at a fire ranger's lodge the flight is continued over a chain of lakes northward, across the height of land, to the headwaters of the Groundhog River. Its course toward James Bay is followed over a wonderful belt of spruce and poplar, unspoiled as yet by fire.

Toward evening we land on Remi Lake, after a wonderful day, during which we have seen a small part of the forest wealth of New Ontario.

We are now in the great clay belt again, and the rugged Laurentian country, with its rapid streams and many lakes, is left behind. The land is level and, where the timber has been cleared, good farms are seen on all sides. From Remi in the morning we still follow the Groundhog River to its junction with the Mattagami over a flat, level country, the timber becoming poorer as we travel north.

Down the Mattagami to its junction with the Missinaibi River to form the Moose, which flows 50 miles northward into James Bay, we pass over a flat, uninteresting country.

Moose Factory is an old trading post

Photograph from Wendell W. Mischler

THE SUMMER HOME OF THE CHIEF JUSTICE OF THE UNITED STATES

Murray Bay, at the end of the railway which follows the northern bank of the St. Lawrence River, has welcomed Chief Justice William Howard Taft for many summers. His commodious residence of 24 rooms is at Pointe-au-Pic.

where is gathered the fur harvest of the North each spring. There is a large school for Indian children.

After an interesting day spent with the hospitable folk of Moose Factory, the flight is continued over James Bay to Charlton Island, where supply ships discharge their cargoes. From this point they are distributed by smaller craft.

The next stop is Rupert House, on the Quebec side of the bay, named after Prince Rupert, the first Governor of the "Company of Adventurers of England trading into Hudson's Bay," founded in 1670.

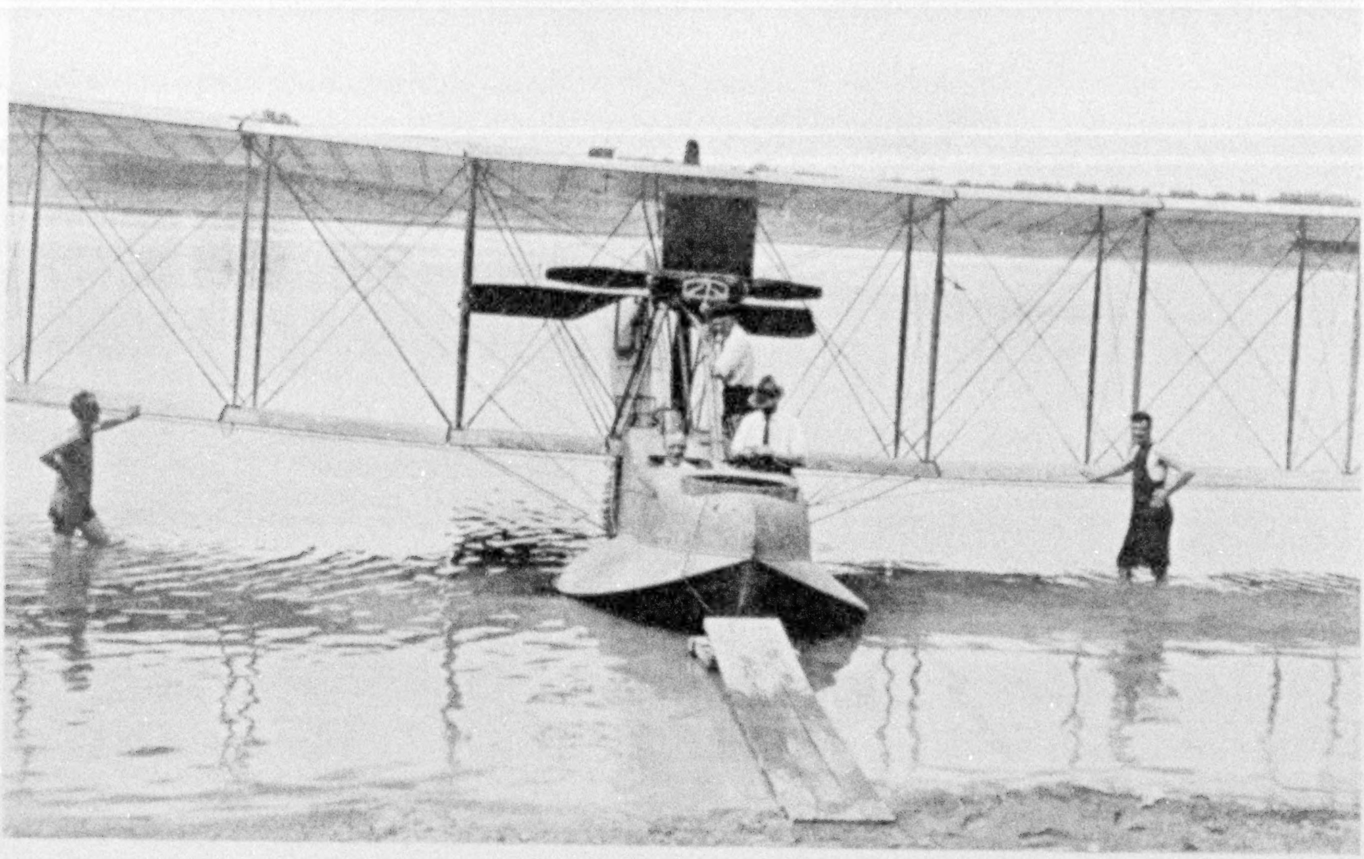
### LO! THE STOLID INDIAN

Our arrival at Rupert House was the cause of much excitement among the Indian population. One veteran, however, refused to be moved and continued to sit under a big spruce, smoking his pipe. When told by some of the younger members of his tribe that the passage from Moose Factory by Charlton Island had been made in a few hours, he was still unmoved and said with a grunt, "What's the hurry?"

Returning to Moose Factory, we now join the Indian Treaty Paying Expedition to Fort Albany and Attawapiskat, on the western shores of the bay. The Indians, in return for ceding their lands, were guaranteed by the British Government a certain annual payment. Each year expeditions are sent out to meet the natives, to whom the treaty money is paid. A physician accompanies the party and the Indians are given medical advice and treatment.

The shores of the bay are lowlying and uninteresting. The water for many miles out is extremely shallow and navigation, even by light craft and canoes, presents great difficulties, owing to the ebb and flow of the tide. From Attawapiskat we return to Fort Albany and proceed up the Albany River through the heart of the District of Patricia, still practically unexplored save along this river.

Treaty money is paid at Martin House, Fort Hope, and Osnaburgh House, three



Photograph courtesy Royal Canadian Air Force

FIRE PATROL FLYING BOAT OF THE ONTARIO FORESTRY SERVICE

The author is seated in the starboard forward cockpit.

Hudson's Bay posts, the last at the head of Lake St. Joseph, some 450 miles from the mouth of the river.

### PICTURESQUE CEREMONIES MARK TREATY-MONEY PAYMENT

Treaty payment is a gala ceremony with the Indians, and the whole population of the district travels to the appointed posts with their canoes, household goods, and dogs. The traders make a harvest, and many gaudy shawls, handkerchiefs, and other forms of simple finery are disposed of, while vast quantities of sweetmeats are consumed.

The Indian trappers and hunters of northern Ontario are, as a whole, a sturdy race, comparatively unspoilt. They are born canoemen and make splendid guides for fishing or hunting in the interior.

From Osnaburgh House we follow Lake St. Joseph west to Lac Seul, and thence south to the railway at Sioux Lookout, the western headquarters of the Ontario Air Service (see, also, page 427).

South and west of Sioux Lookout is a forest district, with many beautiful lakes; in fact, there is almost as much water as land in the southwestern corner of Ontario.

We are now in Kenora, a great summer resort for the Prairie Provinces. On hundreds of islands delightful summer homes are seen on all sides. Launches, sailing boats, and canoes ply over clear waters.

From Kenora the Winnipeg River is followed through a chain of lakes north to Minaki, where we bid the Ontario Air Service au revoir and meet again the Royal Canadian Air Force, one of whose amphibians is on photographic survey work over the unmapped regions near the Ontario-Manitoba boundary.

Permission has been granted by headquarters at Ottawa for flights over eastern and northern Manitoba and Saskatchewan.

### MAPPING AND SURVEYING BY PHOTOGRAPHY

R. C. A. F. units, with headquarters at Winnipeg, have been formed during the past four years for better protection of forests and the exploration and survey of remoter parts of the Prairie Provinces in conjunction with the Dominion Forestry and Survey services.

Millions of acres of forest surrounding Lake Winnipeg are now under daily ob-

Photograph courtesy Royal Canadian Air Force

ON THE EDGE OF THE UNEXPLORED

Minaki, Ontario, is a favorite summer resort for people of the Prairie Provinces. Here swimming, sailing, paddling, fishing, tennis, and golf furnish recreation amid beautiful lake and river scenery. The Minaki Inn, with its golf course leading off to the right, occupies the peninsula in the middle distance.

servation from the air during the season of fire hazard.

Only the principal waterways are now shown on our maps, and these are at best an approximation. Many thousands of square miles have been photographed from the air during the last two years, and new maps showing the topography in detail are being produced with a speed impossible under the old system. The summer operating bases for the planes are at Victoria Beach, at the southern end of Lake Winnipeg, Norway House at its northern extremity, and at Cormorant Lake, on the Hudson Bay line east of The Pas.

Our flight into this new territory is north from Minaki to the junction of the English and Winnipeg rivers; then westward across the boundary into Manitoba, past Lac du Bonnet to Lake Winnipeg at Fort Alexander; thence a few miles to Victoria Beach (see page 440).

On the Winnipeg River, as we follow its course, are seen the big power plants at Great Falls, Pinawa, and Point du Bois, which supply the city of Winnipeg and its district with unlimited cheap hydroelectric power.

We follow here the historic trade route of bygone days, from the Great Lakes to the Northwest, through the Lake of the

Photograph courtesy Royal Canadian Air Force

WHEN THE FORESTS NEED A FRIEND

The fire patrol flying boat of the Ontario Forestry Service has alighted, to bring succor to the flame-threatened trees. Though the majority of Canada's forests are owned by the nation, they are so large in area and so distant from population centers that fire protection is much more difficult than in the United States.

Woods to Lake Winnipeg, and thence to Hudson Bay by the Nelson River, and to the west and north by the Saskatchewan.

We are now in the Prairie Provinces. Our westward crossing of Manitoba and Saskatchewan will continue along the old trade route of the North, leaving for our return journey the passage over the newer farming districts of the prairies. Our route lies through a continuation of the vast forest belt over which we have traveled in Quebec and Ontario. It is a flatter country and, on the whole, the forest wealth is not comparable to that of the eastern provinces, though on the higher ground much fine timber grows along the shores of the rivers and lakes.

At the north end of Winnipeg Lake, Warrens Landing is the headquarters of a large fishing industry. All through the North country fishing plays an important part in the life of the Indians and other inhabitants. Whitefish and pickerel are the chief commercial species, but pike, tullibee, and many other varieties abound.

RADIO LINKS WITH THE NORTH

Fishing, trapping, and hunting are still the mainstays of the population. The mineral wealth of the North is still undeveloped, though prospecting is going on everywhere.

A network of radio stations all over the North, from Yukon to Winnipeg, has

Photograph by R. R. Sallows

AN ALGONQUIN PARK RANGER HAVING LUNCH

This ideal vacation place has a magic of its own, born of sheer wilderness, innumerable lakes, winding streams, fragrant forests, and wild creatures living undisturbed. Camps, shelter huts, and well-beaten portages add to the canoeist's delights.

been built in the last few years by the Royal Canadian Corps of Signals. Communication is maintained with patrol aircraft during their flights at all times, so that instant information of any fires observed may be sent to the main base and men and pumps rushed to the scene of action.

The way north from Victoria Beach lies over the unmapped wilderness east of the lake. Aërial surveys are being carried out in conjunction with the Topographical Survey of Canada for its exploration and mapping.

Our flight is made with an air survey party taking oblique photographs over a long and intricate chain of waterways stretching in a wide semicircle through western Ontario, northward to meet the Manitoba-Ontario boundary near Little Grand Rapids; thence, after refueling, in another semicircle by Moose, Little Trout, Favourable, Lost, to Island Lake.

Taking photographs all the way, we pass over the untrodden, silent places of the North. The journey is continued in a third wide sweep by Beaverhill and Goose lakes to Gods Lake, and thence by Clearwater, Oxford, and Pipestone lakes to Norway House, by the East channel of the Nelson River.

From these photographic traverses of overlapping oblique pictures starting and ending at points whose geographical position is already fixed, a map can be plotted of a strip of country at least 15 miles wide.

At Norway House we visit the famous old Hudson's Bay post. Though still an important center of the fur trade, its former glory has departed and most of the log buildings are empty (page 440).

Photograph courtesy Topographical Survey of Canada

TWO OLD-TIMERS WITH A SEASON'S CATCH OF BEAVER AND WHITE FOX

Photograph by R. R. Sallows

A BEAVER DAM IN ALGONQUIN PARK

This picturesque tract in Ontario Province was set aside for the preservation of deer, moose, beaver and other wild animals. The dam is six feet high and a hundred feet long.

Photograph courtesy Royal Canadian Air Force

AËRIAL SURVEY PLANE "VIKING," WITH CREW DRESSED IN FUR GARMENTS PRESENTED BY MANITOBA INDIANS

From left to right, mechanic, pilot, surveyor, navigator and photographer, with camera mounted for oblique photography.

The busy courtyards, once thronged with voyageurs, trappers, hunters, and traders from all over northern and western Canada, are now silent and deserted.

NORWAY HOUSE—A HISTORICAL SHRINE OF THE NORTH

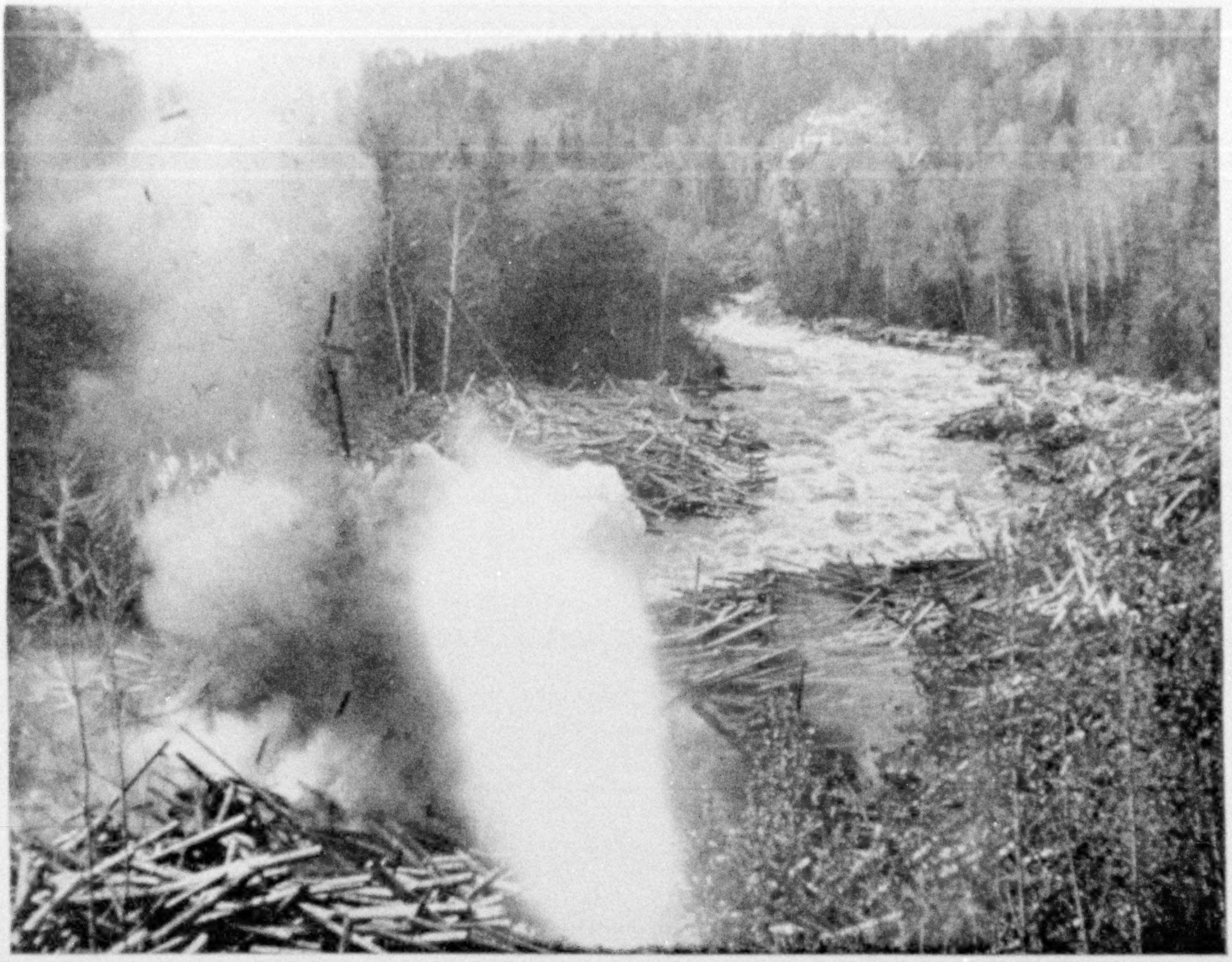
In pre-Confederation days, when the Hudson's Bay Company was not only a trading organization, but a governing body as well, it was the seat of government for the West and North. Here each year met the Council of the North, and to it, from the Mackenzie basin, the Pacific coast, the prairie country, and Hudson Bay shores, came the heads of the different districts, bringing their furs, to meet in conclave with commissioners from Montreal and London.

The old minute books of the Council may still be seen, recording these meetings, and many names famous in the history of the exploration of the North are written in them.

The place conjures up visions of the days of the romance of travel and exploration; of gaunt Sir Alexander Mackenzie, the hardiest traveler of them all, who first penetrated to the Pacific and Arctic oceans over land through Canada; of Sir George Simpson, commissioner of the company, traveling through the wilderness in state, with his retinue of Indians and canoes, covering incredible distances in record time; of Radisson, the king of French-Canadian voyageurs.

In the old garden of the fort there still stands a sundial on whose leaden face are etched the initials "J. F.," showing it was erected by Sir John Franklin, who stayed there in 1827.

From Norway House our next flight is northeast down the Nelson River, over Cross Lake, where a monastery has been



DYNAMITING THE GREAT BEAUCHENE RIVER LOG JAM (SEE, ALSO, PAGE 438)

Photograph by Price Brothers

THE HARVEST OF THE NORTHERN FORESTS: PULPWOOD AND SAW LOGS ON LAKE KENOGAMI, QUEBEC

ONE OF THE WORST LOG JAMS IN THE HISTORY OF THE LUMBERING INDUSTRY

A motion picture company took advantage of this congestion on the Beauchêne River, in the Province of Quebec, and utilized it for a thrilling incident in the film, "The Knockout" (see, also, illustration, page 437).

Photograph courtesy Royal Canadian Air Force

THE GRAIN MARKET OF THE BRITISH EMPIRE

Due to its "bottle-neck" position on the eastern confines of Canada's 800-mile-long prairie farm, Winnipeg has become the Chicago of the Dominion, the gateway for the golden flood which pours from the fertile provinces of the west to the wheat ports of the east. The Parliament Buildings (center) stand in the heart of the city, on the banks of the Assiniboine.

THE ROYAL CANADIAN AIR FORCE STATION AT VICTORIA BEACH, LAKE WINNIPEG, MANITOBA

Photographs courtesy Royal Canadian Air Force

NORWAY HOUSE, MANITOBA

This outpost of law and order is famous in the history of the Northwest. It was once the center of administration and of the fur trade for the northwest half of the American Continent.

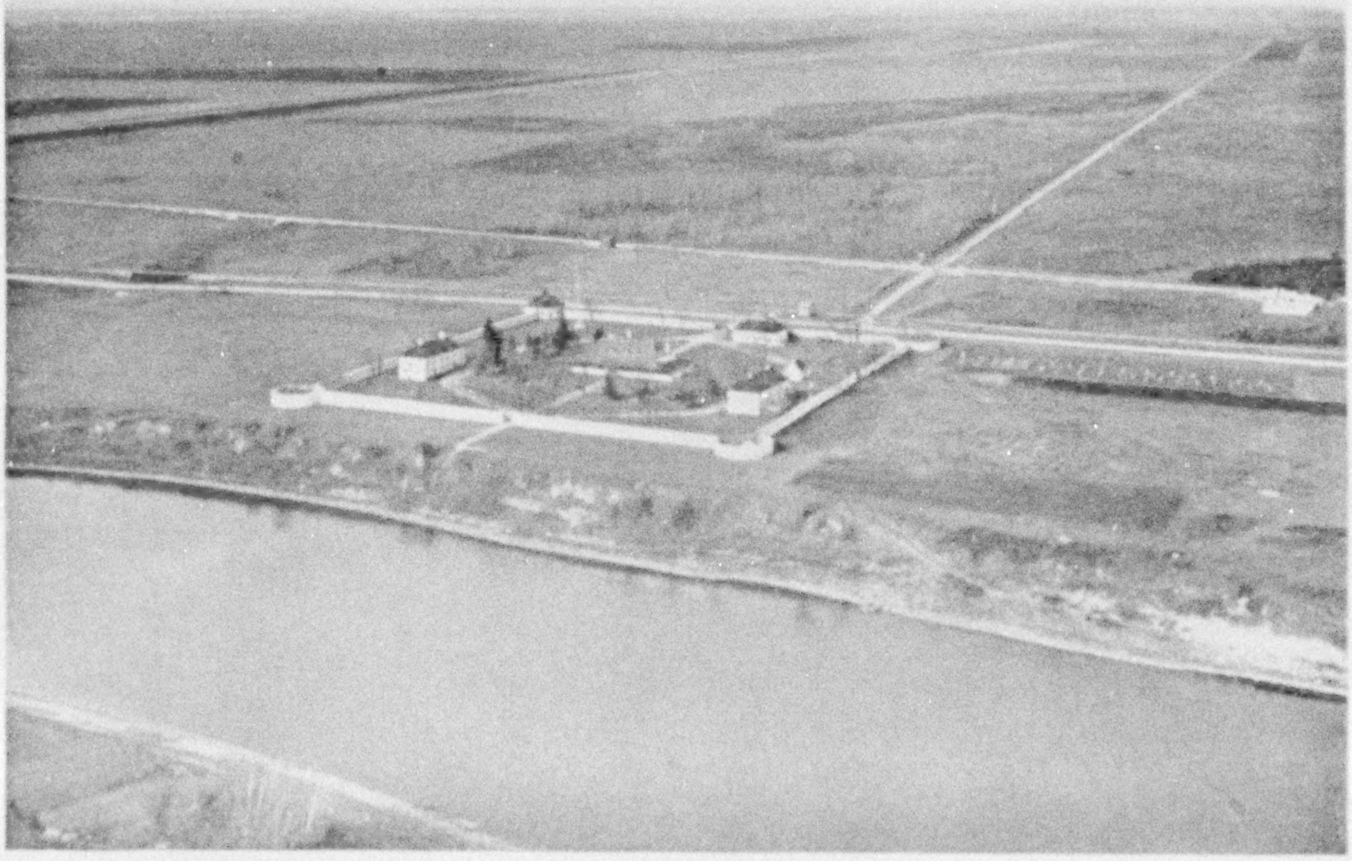
Photograph by Fairchild Aërial Surveys Co.

THE KING OF THE NORTHERN WOODS

This noble game can frequently be surprised in the waters of inland lakes in which it wades to feed on aquatic plants. Guides also attract the animal by imitating its cry (see page 463).

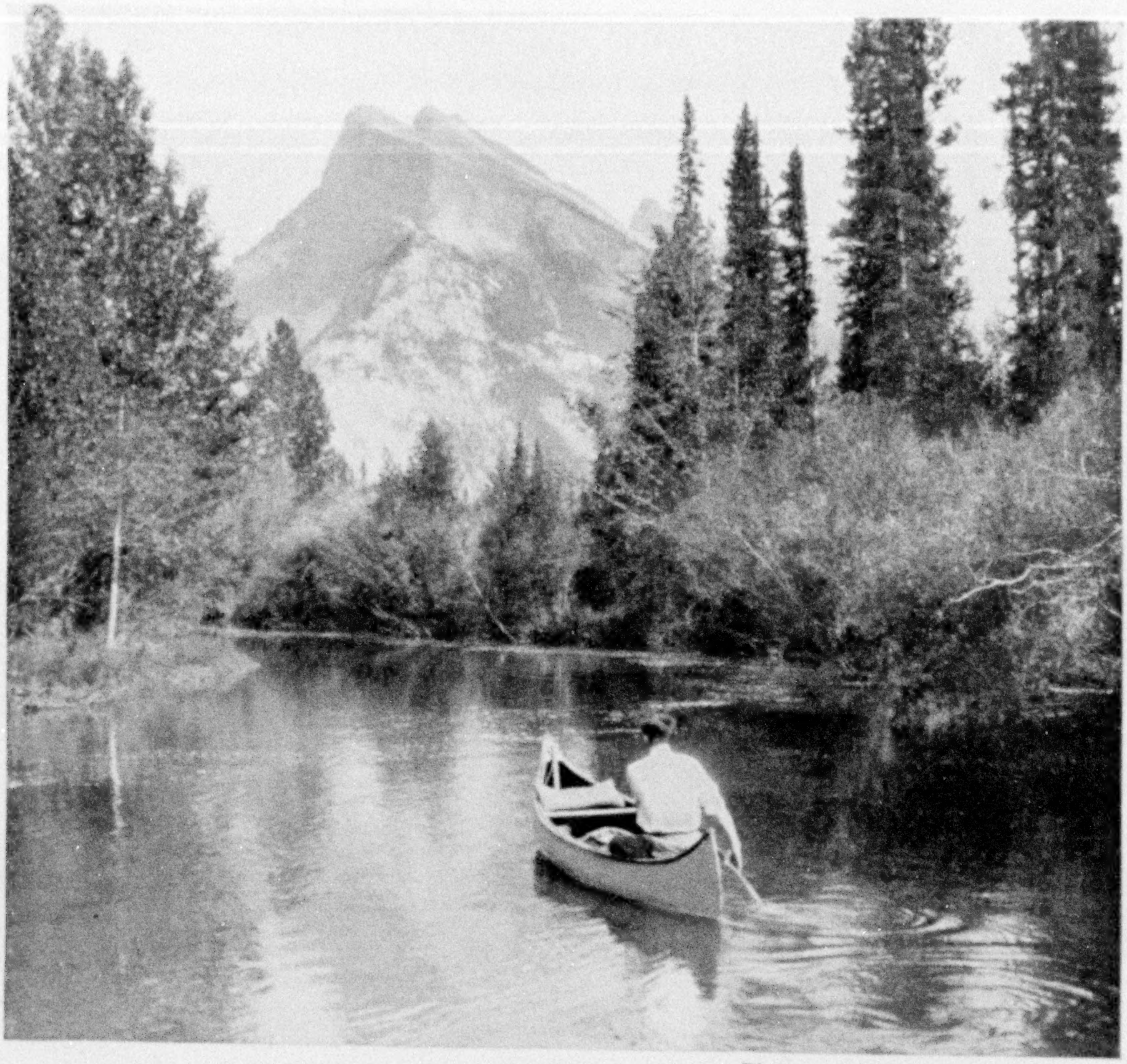
WHERE CANADA'S NATIONAL GAME WAS BORN

Tradition has it that lacrosse originated on the shores of Lac Ile-à-la-Crosse, in northern Saskatchewan. The mission station and trading post of the same name are near the source of the Churchill River.



Photographs courtesy Royal Canadian Air Force

LOWER FORT GARRY, AN OLD HUDSON'S BAY COMPANY POST NEAR WINNIPEG



Photograph by H. Armstrong Roberts

IN THE LAND OF SKYBLUE WATER

On Vermilion Lake, near Banff, Alberta, Canada, with Mount Rundle providing the background.

built by the Oblate Fathers. Here, at the mission school, are a beautiful farm and garden, a sawmill, and on Whiskey-jack Portage a motor truck for the conveyance of supplies brought by launch through the chain of lakes from Warrens Landing, at the head of steamer navigation on Lake Winnipeg (see, also, page 433).

### HUDSON BAY MAY REACH OUT FOR WORLD MARKETS

At Thicket we reach the Hudson Bay Railway. Steel is laid to the crossing at Kettle Rapids of the Nelson River, some 90 miles from Port Nelson. Controversy has raged for many years over this northern route into the Prairie Provinces. The West urges its completion and the building of grain elevators and terminals on Hudson Bay, while the older provinces are inclined to doubt its feasibility, claiming the season of open navigation is only three months and the route unsuitable for navigation by ordinary ocean-going tramp steamers.

The westerners maintain that the route has been navigated by the Hudson's Bay Company and other traders, and that an export route for the produce of the West can be established.

Port Nelson is nearer to Liverpool by sea than Montreal, and the journey to that point from the prairie is no longer than that to Port Arthur and Fort William. More than a thousand miles of lake or rail transport will be saved if the northern route can be developed.

The difficulties are admittedly many; but, whether or not Port Nelson or Churchill is eventually the gateway of

Photograph courtesy Royal Canadian Air Force

LOOKING DOWN UPON EDMONTON, ALBERTA PROVINCE

To the left, near the bridge, may be seen the Parliament Buildings, and on the right bank of the North Saskatchewan River, the campus and the buildings of the University of Alberta.

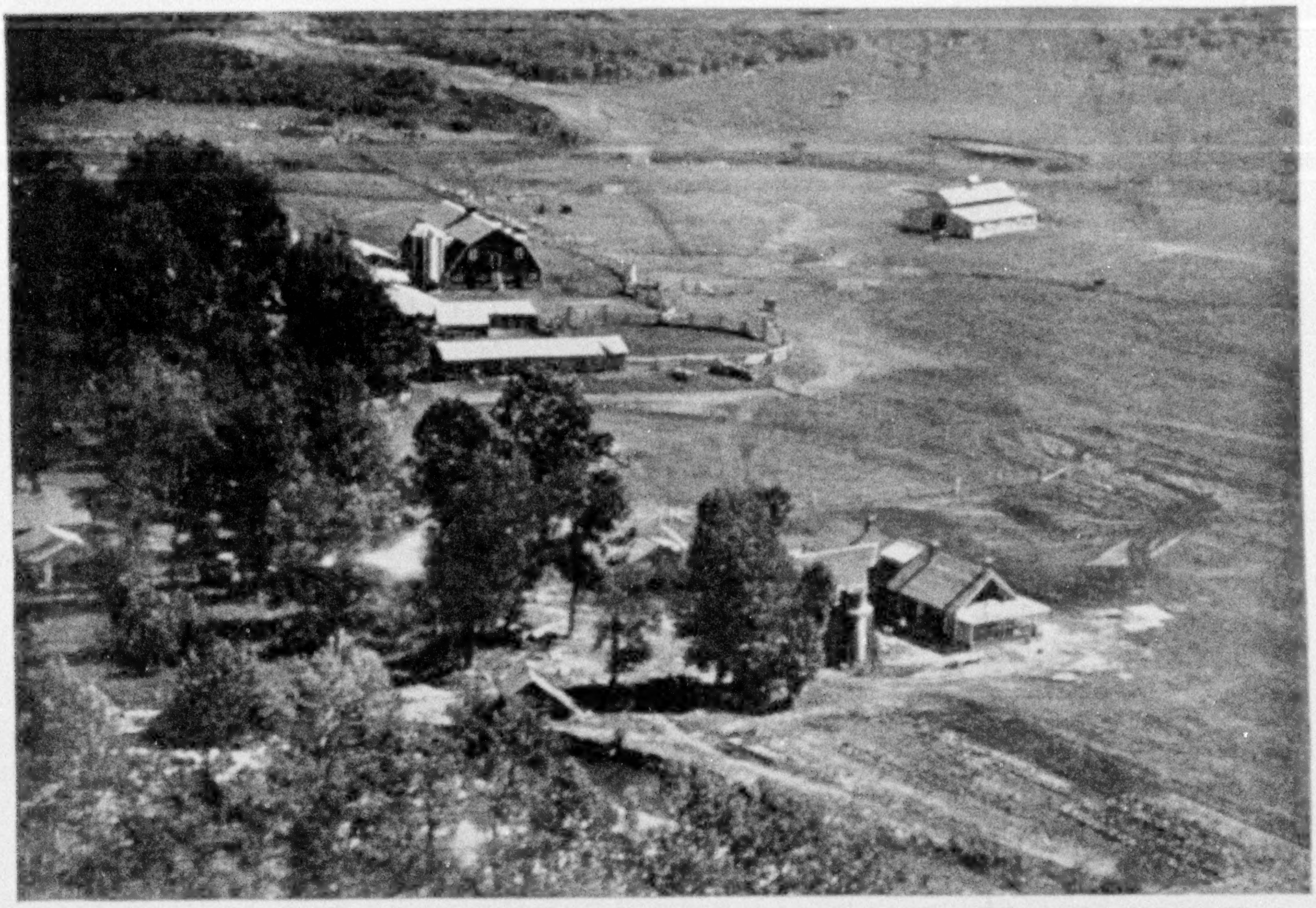
western Canada, there is no doubt that the completion of the line and the building of harbors at either or both ports will lead to much development in the North country and will provide during its open season a short route to the markets of the world.

Much money has already been spent in creating the port at Nelson, and only the financial stringency following the World War has prevented its completion.

The Nelson is one of the great rivers of Canada, draining an area of 370,000 square miles, and it is estimated that no less than two million horsepower can be developed on its waters.

### FRENCH AND ENGLISH FOUGHT FOR SUPREMACY AT CHURCHILL

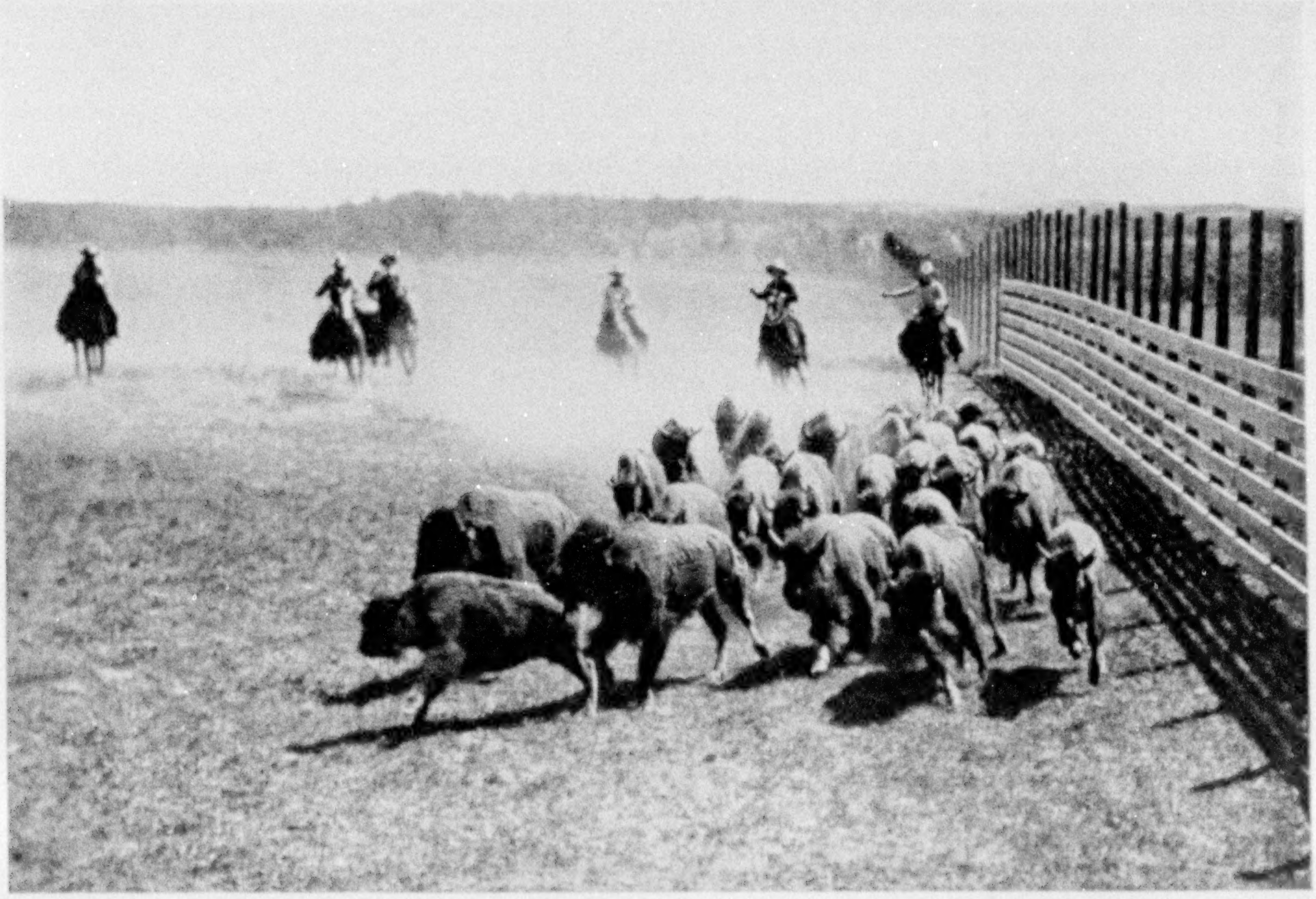
From Port Nelson our flight is continued round the coast of Hudson Bay to Churchill; thence up the Churchill River through Southern Indian Lake to Pukatawagan; thence west, over the border into Saskatchewan, north, up the Reindeer River to Reindeer Lake as far as



© Royal Canadian Air Force

THE PRINCE OF WALES' CANADIAN HOME

The E. P. Ranch, on the Highwood River, in the foothills of western Alberta, is the famous stock farm of the heir to the throne of the British Empire.



Photograph from J. A. Wilson

ROUNDING UP BUFFALO FOR BRANDING (SEE TEXT, PAGE 447)

© Wm. Notman and Son, Montreal

GLACIAL GEMS OF THE BOW VALLEY

High above Lake Louise lie the mountain-cradled Lakes in the Clouds. From Lake Agnes a Bridal Veil Falls spills over a wide ledge to Mirror Lake, whose forest ramparts so protect it that no breath of air can ruffle its peacock-green, crag-reflecting waters. In the background is Mount Lefroy, whose ascent is for experts only.

Brochet, at the head of the lake; and, returning to the Churchill, on past Stanley Mission to Lac Ile-à-la-Crosse; thence southward, by the Beaver River and Cowan Lake, to civilization again at Prince Albert, on the Saskatchewan River.

Space permits me, however, only to touch on one or two of the principal features of this great exploratory flight into the North.

In the eighteenth century Churchill was the scene of the struggle between the French and the English for supremacy over Hudson Bay. Its strategic importance at that time can be gauged by the ruins of Prince of Wales Fort, whose solid masonry remains to this day. It is still an important trading post and the headquarters of one of the Royal Canadian Mounted Police districts.

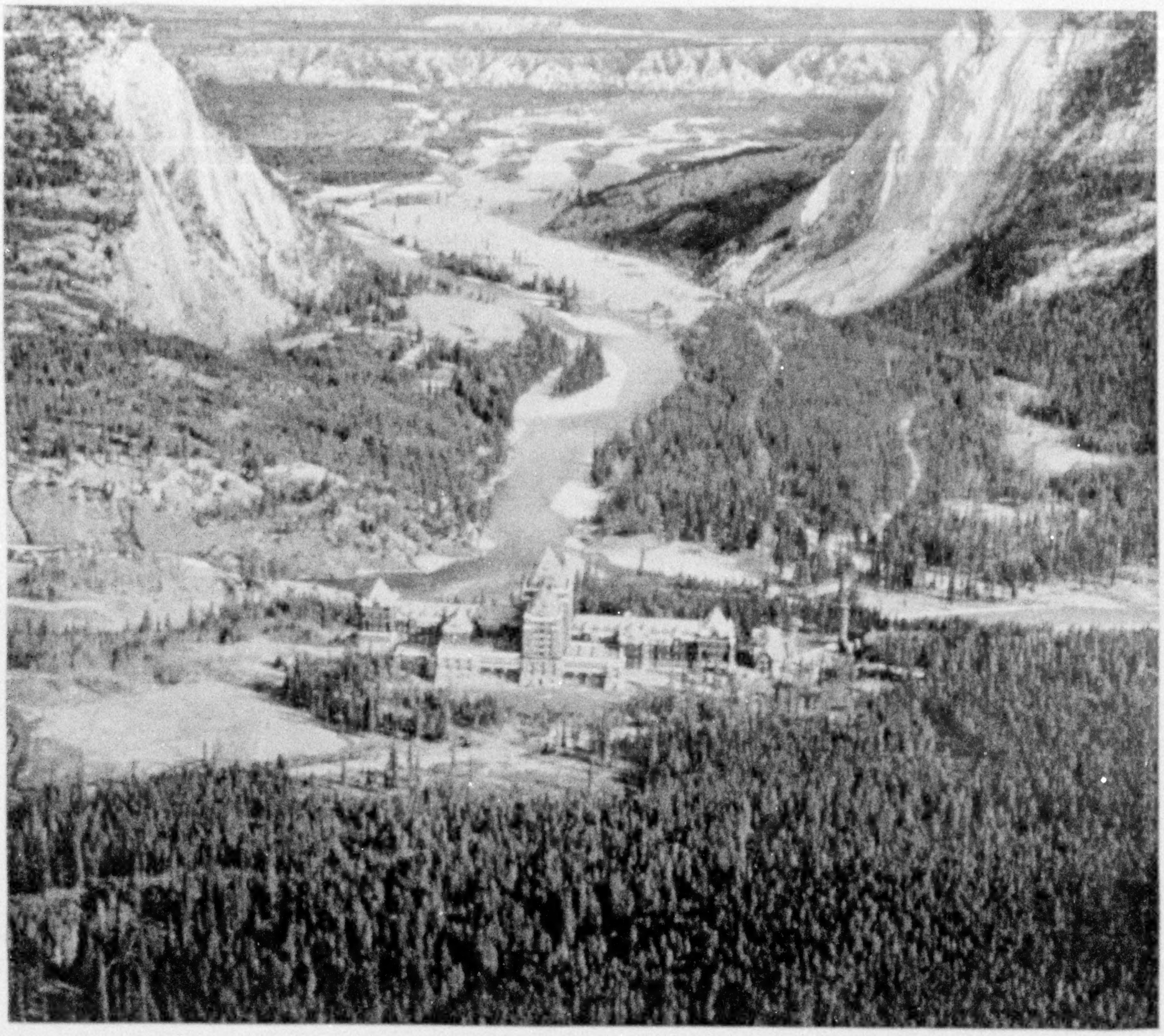
The timber in the districts north of the Prairie and south of the Churchill, though badly depleted by fire, is valuable. Spruce is the most important species commercially, but poplar, birch, tamarack, and jack pine, all have their uses.

Stanley Mission is a very old post, and at Ile-à-la-Crosse, also, there is a large mission. It is on the old trade route from the Saskatchewan north to the Mackenzie and in olden days was a famous meeting place of the Indians.

WHERE THE CANADIAN NATIONAL GAME ORIGINATED

Tradition has it that the Canadian national game, lacrosse, had its origin here, on the shores of the lake, where the Indians came to trade (see page 442).

At Prince Albert we reach the edge of the prairie country, but the settlement is spreading into the park lands north of the Saskatchewan River. South of that, wheat farming predominates.



Photograph courtesy Royal Canadian Air Force

THE HOTEL AT BANFF RISES IN A VALLEY AT THE JUNCTION OF THE BOW AND SPRAY RIVERS, IN THE PROVINCE OF ALBERTA

The flight is continued by the South Saskatchewan to Saskatoon, in the heart of the wheat-growing country. This is a thriving town, the seat of the University of Saskatchewan, pleasantly situated on the high banks of the river.

For the first time we are now flying an airplane, as on the prairie good landing fields can be found everywhere.

### THE BUFFALO RESERVE

From Saskatoon we proceed to Wainwright, in Alberta, to visit the great buffalo reserve. The animals now number some 9,000, and 2,000 are being shipped to the new reserves in the Mackenzie basin, there to be released to augment the last remnants of the once vast herds which still roam wild in that remote district (see illustration, page 445).

Besides the buffalo, there is a very fine herd of elk and a few antelope. No visitor to western Canada should fail to see this splendid animal sanctuary.

Our next landing is at Edmonton, a generation ago a mere trading post and village, to-day a fine city of some 70,000 people and the capital of the thriving Province of Alberta (see page 444).

Formerly almost exclusively a ranching country, Alberta has now become a grain-growing and dairy province. Its resources are more varied than those of the other Prairie Provinces, its timber valuable, and its coal mines practically inexhaustible. Natural gas is found in quantities, providing cheap light, heat, and power, while its oil fields are also being developed.

Edmonton is the distribution point for the Mackenzie and Peace River valleys. A railway runs to McMurray, and from

Photograph by Branson De Cou from Galloway

A GLIMPSE OF LAKE LOUISE, ALBERTA

This, one of the most beautiful lakes in the world, is located some 34 miles west of Banff. In the distance is majestic Victoria Glacier. Note the rowboat in the left center.

there steamers ply, over 1,200 miles, with one break at the rapids on the Slave River, to the Arctic Ocean.

Though aircraft have been flown north as far as Norman, no regular air service runs down the Mackenzie basin to-day.

Plans have been made for the protection of the forests in northern Alberta and for surveys, and within two years the aircraft and men necessary for this work will be available. The flight down to the Arctic must be postponed till then and our bird's-eye view of Canada must be incomplete in this respect.

Our way west from Edmonton lies first over a rolling park land, well watered, well settled, and prosperous. Gradually the country becomes wilder and more broken. Muskeg (swamp) and forest increase till the railway reaches the valley of the mighty Athabaska, rushing down from its glacier sources on its long course to the Arctic Ocean.

We follow this river upstream through the foothills and finally reach the Rocky Mountains. On all sides, as far as the eye can reach, gray limestone mountains, crowned by the snow fields and glaciers of the continental watershed,* lift their heads toward the skies.

The valley is wide and the Yellowhead Pass is comparatively low. Of all the railway crossings of the Cordillera in North America, it has the easiest gradients, both east and west.

Our landing place is near the site of Henry House, an old Hudson's Bay post now in ruins, for we are once more on one of the early trade routes.

### CANADA'S CHIEF ROCKY MOUNTAIN PLAYGROUND

An open prairie between the railroad and the river makes a natural airdrome here a few miles from Jasper, the headquarters of the National Park Administration.

Jasper Park is the greatest of the national playgrounds established by the Dominion Government for the preservation of the scenery and wild life in the mountains. The National Railways have built a most attractive hotel, or rather series of lodges, here on the shores of Lake Beauvert. A golf course has been laid out and the swimming, tennis, paddling, riding, and fishing are excellent.

Good motor roads have already been built in the near-by districts of the park and riding trails have been opened for those who wish to penetrate farther into the mountains.

Within a few days' march of Jasper stand some of the finest peaks in Canada. For the alpinist who has leisure, the park is a paradise, with scores of climbs and many virgin peaks.

Our aircraft has come to seek out possible routes for new trails in the park, to explore valleys hitherto untrod, and to obtain photographs of its scenery. We are fortunate to be able to participate in one of these flights, west up the valley of the Miette, round the south and west faces of Mount Robson, then north over the Continental Divide for a distance of 100 miles.

### A SCENE OF TITANIC SPLENDOR

No more wonderful experience has fallen to our lot. Mount Robson, more than 13,000 feet high, is one of the giants of the Rockies. Its northern slopes are hung with glaciers and snow fields.

Beyond the limit of the flight, north of Mount Sir Alexander, a wedge-shaped peak rising out of a vast snow field, whose knife-edged summit ridge is practically unscalable, the mountains are lower, more rounded, and the scene loses its Titanic splendor.

In the park bighorn sheep and mountain goat, moose, caribou, and grizzly abound. Strict preservation has increased the wild life since the reservation was first established.

Near Jasper a magnificent herd of elk can be seen at any time and are comparatively tame, while bighorn quietly watch motors and trains pass.

From Jasper the way to the Pacific lies by the Yellowhead Pass over Moose and Lucerne lakes at the summit, where rises the Fraser River, flowing first northwest and then south through the heart of British Columbia. We follow its course to Prince George, and thence by the Nechako Valley to Fraser Lake.

* See, also, "The Mother of Rivers—the Great Columbia Ice Field in the Canadian Rockies," by Lewis R. Freeman, in the NATIONAL GEOGRAPHIC MAGAZINE for April, 1925.

Photograph from Harold Fleming by S. J. Thompson

TAKING SALMON, VANCOUVER ISLAND, BRITISH COLUMBIA

The large canneries stand idle in fall and winter, but in spring shiploads of cans and oriental workmen arrive to prepare for action. During the runs the fish are scooped from the water with huge nets, rushed to the canneries and into cleaning and cooking machines, from which they emerge in cans ready for shipment. A large amount of fish is also frozen, and some is shipped fresh.

Here we again change aircraft, our airplane returning to the prairie, while we proceed westward in a flying boat operated in northern British Columbia, with headquarters at Hazelton, for the transportation of hunting parties, prospectors, and trappers into the district beyond ordinary means of transportation.

All through the rich valleys served by railway, settlement is proceeding apace. There is much open country suitable for farming, while fine timber abounds everywhere. Though its mineral wealth is not yet developed, placer gold has been worked on many streams for the last 50 years and prospecting continues.

At Hazelton, where the Bulkley River joins the Babine to form the Skeena, we again change aircraft and are once more in the hands of the R. C. A. F., and with them fly down the Skeena Valley to Prince Rupert, the Pacific terminus of the Canadian National Line.

The R. C. A. F. operates aircraft from a subbase here during the summer months for the better protection of the coastal fisheries.

Prince Rupert is the headquarters of an immense fishing industry. Its halibut grounds are among the finest in the world, while salmon canneries line the coast. The site for the terminal city was chosen on a natural harbor, which, as settlement and production in the interior increase, will undoubtedly become a great port.

A grain elevator is being built here to handle grain from the northern interior of British Columbia and the Prairie

Photograph courtesy Canadian Government Motion Picture Bureau

A SCOWLOAD OF FRESHLY CAUGHT SALMON, BRITISH COLUMBIA

British Columbia's salmon catch is valued at $10,000,000 yearly. This boatload was obtained near the mouth of the Skeena River and will be taken to Prince Rupert, which handles about 40 per cent of all salmon packed in the province.

Photograph courtesy Canadian Government Motion Picture Bureau

SALMON TRAPS AND STRIPPING PENS AT THE CANADIAN GOVERNMENT HATCHERY, LAKELSE, BRITISH COLUMBIA

Canada, like the United States, recognizes the increasing importance of artificial propagation of salmon in streams of the Pacific seaboard, so that in both countries there are at present more hatcheries devoted to the Pacific salmons than to any other fishes of the Western Hemisphere. The five distinct Pacific species run more or less regularly year after year, and are easily taken on their way to the spawning grounds by racks, traps, seines, and other means. The average number of salmon eggs to a bushel is 125,000.

Provinces, and good deep-water wharves, a ship repair plant, dry dock and wireless station, all show the determination of the Dominion Government to assist the development of the Pacific Northwest.

The Province of British Columbia is in many respects the most favored part of Canada. Within its boundaries are reproduced most of the climates of North America and almost every natural feature. It has an area of more than 355,000 square miles, or more than three times that of the United Kingdom (some 90,000 square miles larger than Texas).

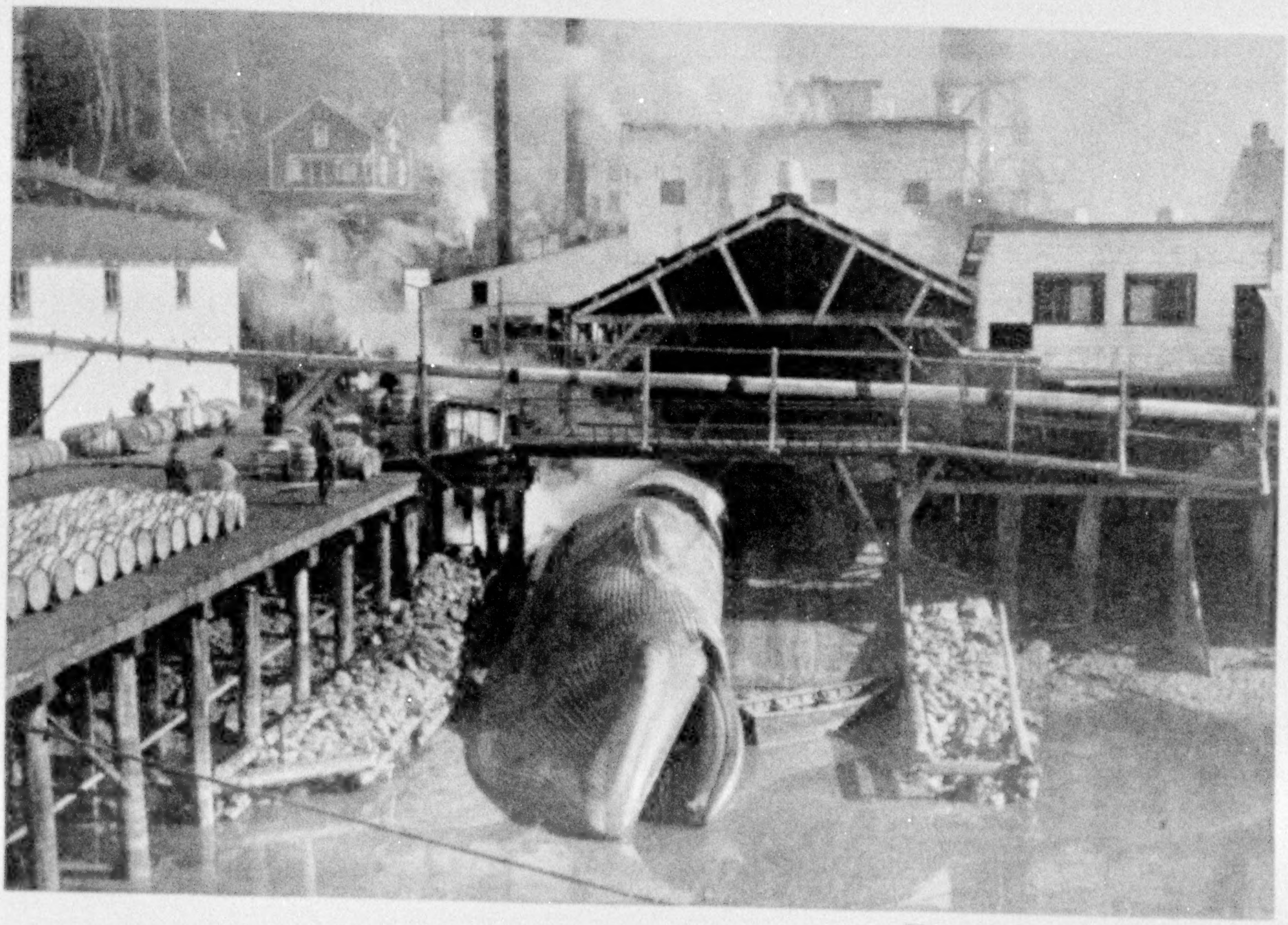
Though much of the province is mountainous, yet the valleys are extremely fertile and the quality of their fruit is famous.

In the interior, vast areas are suitable for grazing and ranching, grain-growing,

Photograph by Leonard Frank

PTARMIGAN IN THE HEART OF STRATHCONA PARK, VANCOUVER ISLAND

This picture, taken at close quarters, at an elevation of 6,000 feet, was secured only after patient stalking, for the birds are exceedingly shy.



Photograph by Harold Fleming

A WHALING STATION ON VANCOUVER ISLAND

After capture, the carcass is towed to the whaling station for cutting.

Photograph courtesy Canadian Government Motion Picture Bureau

GENEALOGICAL TREES OF THE HAIDAS: ALERT BAY, BRITISH COLUMBIA

The "thunderbird" dominates the totem poles in this Indian village, but whales, bears, giant kingfishers, and fish also symbolize family history. Sometimes the carvings may be crests of the house-owner, a figure of himself, or of some one he wished to ridicule. A door was frequently cut through the base of a pole. The earlier Haidas were noted as the most artistic carvers of this region.

and diversified farming. The forests are second to none in the Dominion. Douglas fir, spruce, and cedar are the principal commercial species.

### CANADA'S FIORD LAND RIVALS NORWAY

The flight southward from Prince Rupert along the coast, through the inland passages and fiords, is wonderful.

The channels between the island and the mainland are narrow and only occasionally is the route open to the wide waters of the Pacific.

Lofty mountain ranges rise on either hand, their highest summits crowned with eternal ice and snow, their slopes forest-clad.

Many coasting vessels ply up and down these inland waters on the routes between Vancouver, Seattle, Portland, Tacoma, and the northern British Columbia and Alaskan coasts. "Earth hath not anything more fair to show" than this coastal region, so full of promise for the future.

Half way down we reach the northern end of Vancouver Island, enter Queen Charlotte Strait, and then, passing through the narrows of Johnstone Strait and Discovery Passage, emerge into the broader waters of the Strait of Georgia.

Crossing the island at its narrowest point to Alberni, the aircraft flies down the Alberni Canal to Barkley Sound and out into the open Pacific.

In the heart of Vancouver Island another national park has been created by the Provincial Government around Buttle Lake, containing some of the finest stands of timber in the province, the far-famed fishing grounds of the Campbell River,

Photograph by Harold Fleming

HARVEST TIME IN THE STRAWBERRY FIELDS OF VANCOUVER ISLAND

and beautiful mountains whose glaciers and snow fields rise 7,000 and 8,000 feet almost sheer from sea level (page 453).

### THE MOST ENGLISH TOWN OUTSIDE OF ENGLAND

Passing south down Juan de Fuca Strait, with the massive pile of Mount Olympus to the south and the low, wooded coast line of the island to the north, we approach Victoria. This city, the capital of the province, was founded in 1842 by Sir James Douglas, governor of the Hudson's Bay Company, who moved the Pacific coast headquarters here from Fort Vancouver, in the State of Washington, after the Oregon boundary settlement (see pages 458-459).

Victoria, perhaps the most English town outside of England, is indeed a charming city. Its situation is delightful; and the absence of the rush and hustle of other Western cities, its beautiful gardens, fine buildings, drives, and splendid climate, all lend it an attraction for those who wish to lead a quiet, out-of-door life and escape the rigors of the sterner climate of other provinces.

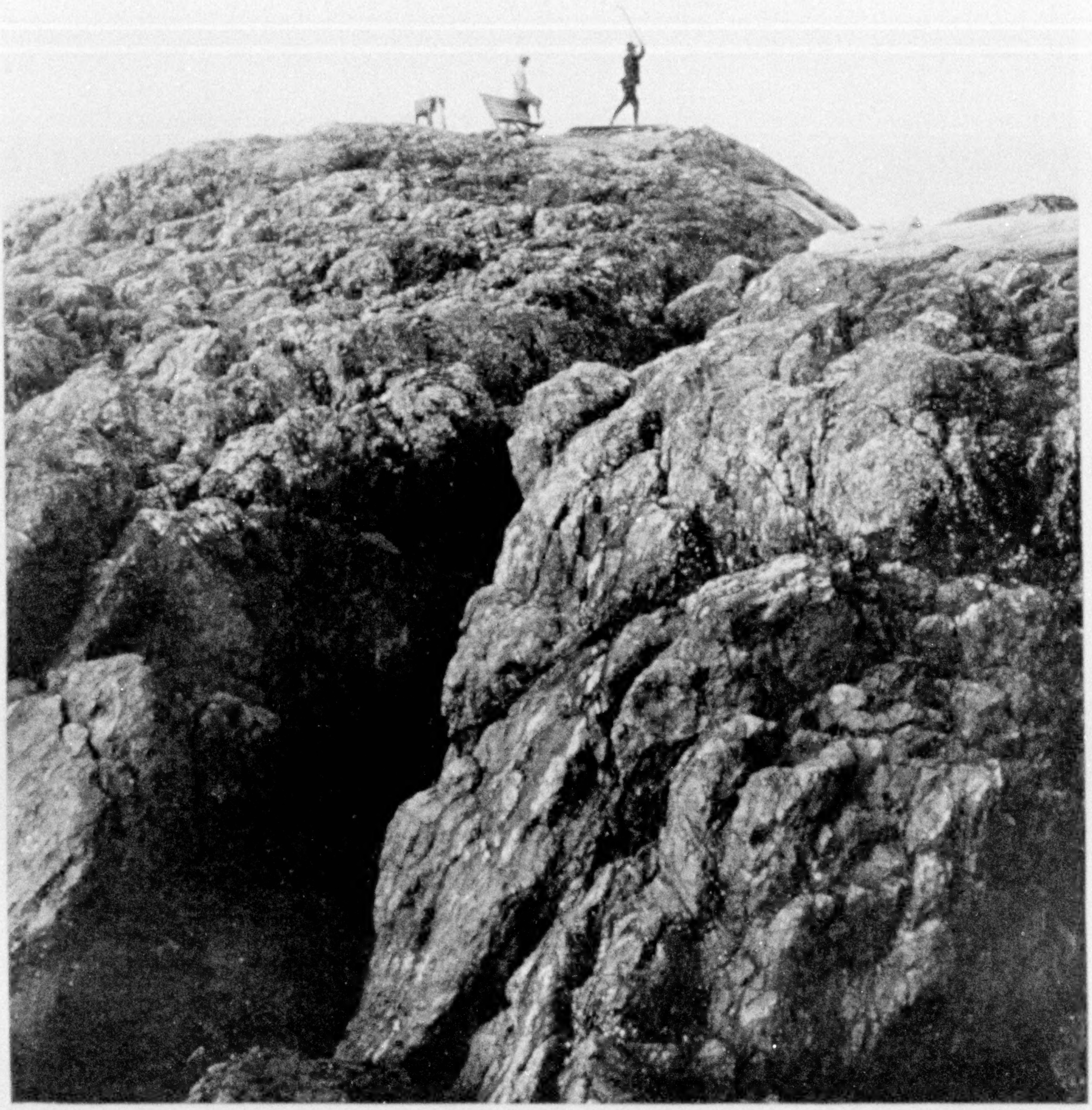
Esquimalt, the naval base, situated in a near-by bay, is of importance strategically and the headquarters of the Royal Canadian Navy and Imperial Fleet on the Pacific coast.

Victoria is the first point of call for liners from the Orient. The surrounding district is generally fertile, and fruit, dairy, and general farming flourish. The timber resources of the island are extensive and the coal mines of Nanaimo and Comox supply a large part of the Pacific trade.

However fascinating this quiet city, time presses and we cannot linger, but must retrace our steps eastward, over British Columbia and through the wheat fields of the prairie to eastern Canada once more.

### VANCOUVER IS STILL IN THE MAKING

The first flight lies across the Strait of Georgia, thickly dotted with picturesque islands, to Vancouver, the metropolis of the Pacific coast. A thriving city, still in the making, each year its importance and trade increase. A generation ago tall pines grew where it stands; in 1923 its



Photograph by Harold Fleming

A LOFTY DRIVE

Golf at Oak Bay, Victoria, Vancouver Island, British Columbia.

shipping trade was second only to that of Montreal (see page 460).

With the wealth of the mines, timber, fisheries, and agriculture of not only British Columbia, but of the western prairies behind it, it cannot be otherwise than one of the great trading ports of the world.

Vancouver is built on Burrard Inlet, north of the mouth of the Fraser River, and is the Pacific terminus of the two major railway systems of Canada.

Southeast of the town, on the Fraser River, lies the older city of New Westminster, the headquarters of Canada's fishing industry on the Pacific coast.

We make a short stay at the R. C. A. F. station on English Bay, and from there make many interesting flights in the neighborhood with aircraft flying on many different services, such as forest and fishery protection, aërial photography, antismuggling patrols for the Preventive Service, transportation for the white pine blister rust control parties, and so forth.

The way homeward lies up the Fraser River valley, at first wide and fertile,

Photograph by Harold Fleming

A GIANT CEDAR OF VANCOUVER ISLAND

Some of the finest stands of timber in British Columbia are to be found in the national park created by the Provincial Government around Buttle Lake (see text, page 454). The province itself is believed to possess one of the largest, most compact, and most readily accessible stands of merchantable timber in the world.

hemmed in on all sides by timber-clad mountains, and gradually narrowing as we proceed inland, till we reach, at Yale, the entrance to the canyon through which the river flows down from Ashcroft, falling 1,000 feet or more in 80 miles.

This is a perilous stretch for flying boats, as the mountains tower 8,000 feet on either hand and the river rushes through the narrow gorge, a succession of rapids with few stretches of quiet water.

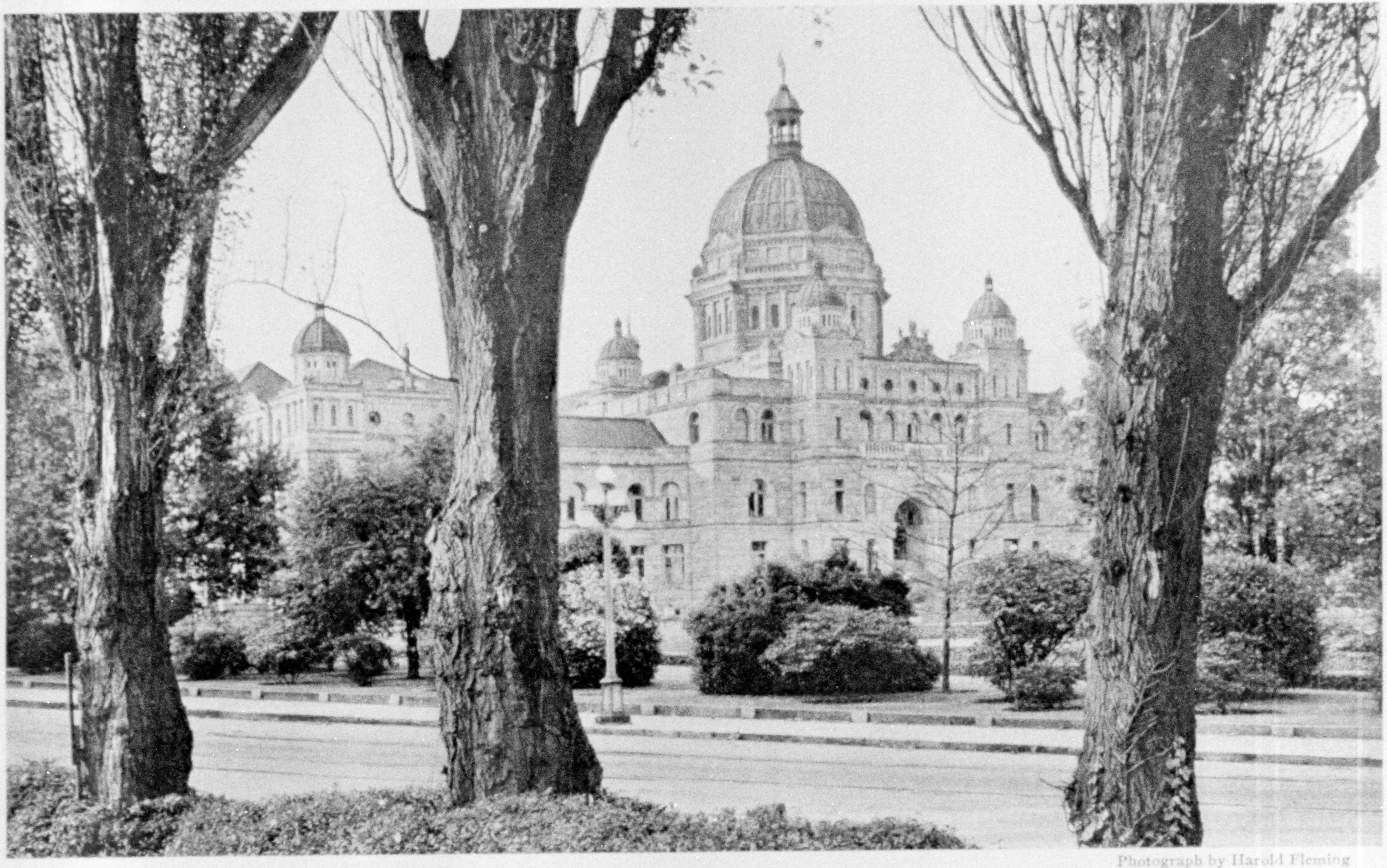
The aspect of the whole scene has changed from the verdant hills of the coast. We are now entering the interior dry belt. Vegetation is sparser and the mountains bare and rocky. Threading their way through the canyon on either side, one sees the lines of Canada's two great transcontinental railway systems, and in places the remains of the old Caribou Trail built in the fifties to provide access to the gold diggings of the interior.

THE MOST DANGEROUS PART OF THE FLIGHT

At Ashcroft we leave the old trail and turn eastward toward Kamloops, a prosperous town, the center of a ranching, farming, fruit-growing, and lumbering district, where, after refueling, we proceed eastward, along the South Thompson River and over a wonderful country of mountains, forests, and lakes, over Shuswap Lake, with its many arms; on to Sicamous, at the head of the valley leading to the famous Okanagan fruit district; then on, over the Eagle Pass, to Revelstoke.

We are now approaching the most hazardous part of our journey, the flight over the giant chains of the Selkirk and Rocky Mountains. To picture their vastness in words is impossible. The scene can be imagined only by those who have themselves stood on some of the higher peaks of that glorious alpine region.

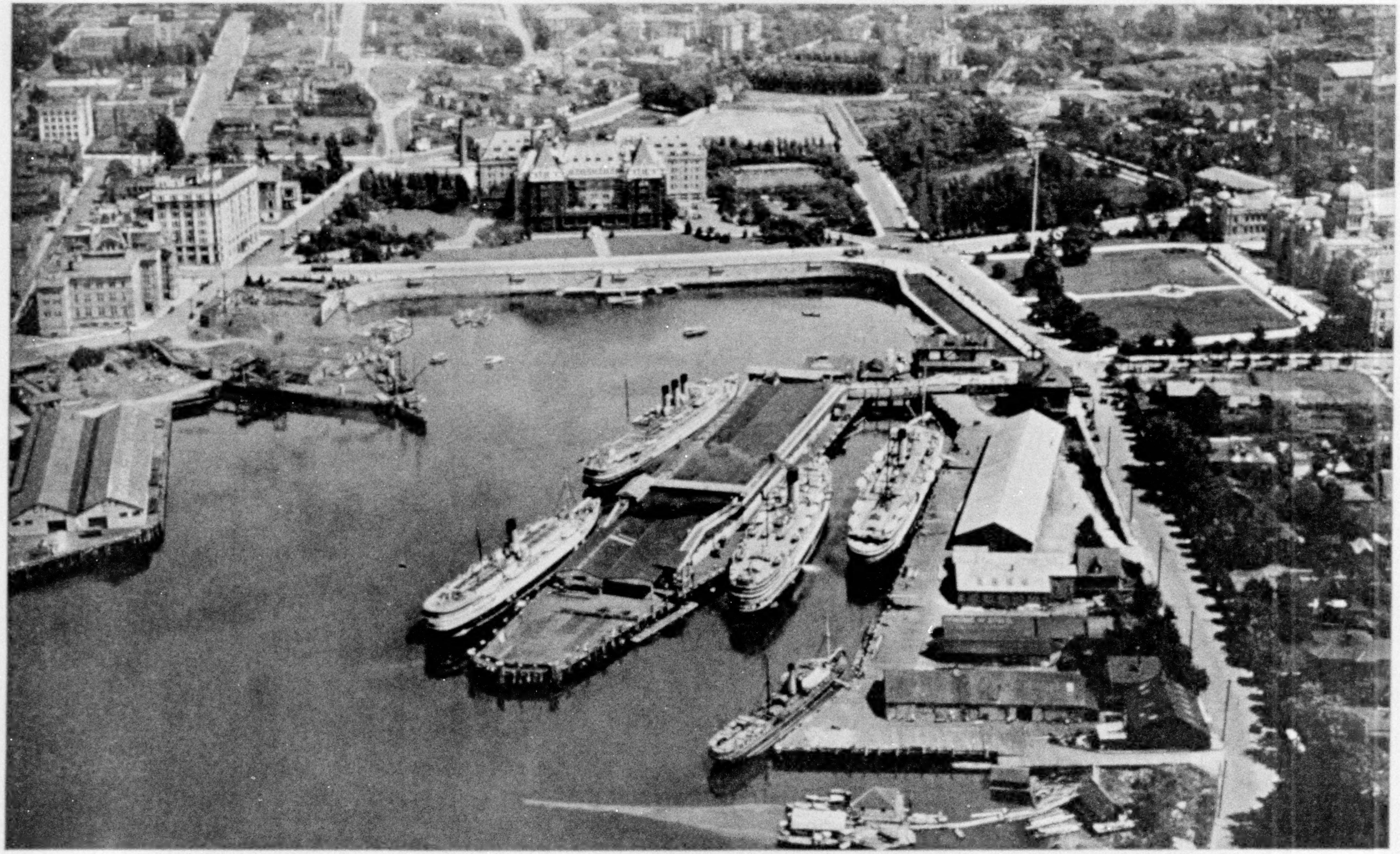
As far as the eye can observe is a sea of tumbled masses of rock, ice, and snow, intersected by deep valleys on whose steep sides virgin forests grow and in whose



Photograph by Harold Fleming

THE PARLIAMENT BUILDINGS IN VICTORIA, VANCOUVER ISLAND

Surmounting the dome is a statue of George Vancouver, the British navigator who gave his name to the island whose coasts he explored in 1792-4. The wide and well-kept streets, flower gardens, homes, and the cultured, leisure class, with its old-world customs and traditions, make Victoria one of the most English of cities in the Land of the Maple Leaf (see text, page 455).



Photograph courtesy Royal Canadian Air Force

THE INNER HARBOR OF VICTORIA, VANCOUVER ISLAND, WITH THE BEAUTIFUL DOMED PARLIAMENT BUILDINGS TO THE RIGHT

Photograph courtesy Royal Canadian Air Force

VANCOUVER IS CANADA'S CHIEF PACIFIC PORT

The numerous rafts in False Creek show the activity of the lumber trade on the British Columbia coast, for Vancouver ships 16,000,000 feet a month to all parts of the world (see text, page 455).

depths mountain torrents rush to swell the Columbia River.

We trace the main line of the Canadian Pacific Railway through the Selkirks, past Glacier, following the course of the Columbia for 20 miles, and then turn eastward into the narrow defile leading to the Kicking Horse Pass through the Rockies.

Once the summit is reached, near Lake Louise, the valley again widens, the hills recede, and, following the Bow, flowing eastward, we again breathe freely, as there are possible landing grounds in the wide valley. Here is one of the finest playgrounds in the world for mountain lovers. Splendid hotels have been built and the National Parks Branch here, as at Jasper, has constructed roads and improved trails giving access to the heart of the mountain ranges.

The most stringent laws for the conservation of the wild life and natural beauty are enforced.

### THE FOOTHILL COUNTRY—DIVIDING "THE DESERT FROM THE SOWN"

After passing Banff the mountains become lower and gradually shade off into the foothill country, "the stretch which just divides the desert from the sown," the mountains from the fertile fields of the prairie.

We are now in sunny Alberta once more and over the most delightful part of the province. The foothill region is here about 40 miles wide, a well-wooded park land, through which countless streams of clear, cold, glacier water run down from the mountain valleys. It is an ideal stock-raising country.

The R. C. A. F. has a station here for the protection of the foothill forest reserves from fire. It is also the base of the photographic mapping of these districts.

Calgary, the principal city of southern Alberta, is a busy town of 63,000 inhabitants, the center of a ranching and farming district. It has many industries and is in the fortunate position of having an unlimited supply of natural gas to provide cheap power, light, and heat.

Our way lies over the C. P. R. main line to Medicine Hat, headquarters of the cattle-raising country; then over the Saskatchewan border steadily eastward for many hundreds of miles, past Moosejaw and Regina, the capital of Saskatchewan, with its fine Parliament Buildings, and into Manitoba.

### WHERE WHEAT IS KING

Wheat is king everywhere, though fortunately mixed farming has not been neglected. Here, as elsewhere, the Air Force has useful work to perform, and all through the Prairie Provinces investigation of the epidemiology of the wheat rust disease is being carried out in conjunction with scientists who are studying the same problem.

The grain fields of western Canada stretch 800 miles east and west, from Calgary and beyond to the western boundary of Ontario. Elevators rise everywhere along the railway lines and threshing outfits are busy in the fields.

Winnipeg is the distributing center for the west and, as it were, the neck of the bottle, where the railway lines converge. The original settlement was made more than a century ago, at Selkirk, 20 miles down the Red River. Surrounding the site of old Fort Garry, whose ruins may still be seen, a great city has arisen during the past two generations, with fine streets, well-timbered parks, and driveways along the Assiniboine and Red rivers (see pages 439 and 442).

This is a leafy city, far removed from one's idea of the drab, treeless prairie.

The noble Parliament Buildings of Manitoba, built on the banks of the Assiniboine River, are worthy of the province. Growing with the great Canadian west, Winnipeg's future is assured.

Here we leave the airplane which has carried us across the prairie and again embark on one of the R. C. A. F. flying boats, retracing our steps by the Red River to Victoria Beach, on Lake Winnipeg, and thence to Minaki and Kenora by the Winnipeg River.

At Kenora we again meet our old friends, the Ontario Air Service, and in one of their flying boats follow the main line of the C. P. R. to Fort William and Port Arthur, the twin cities at the head of navigation on the Great Lakes, through whose ports flow the golden harvests of the West. Elevators line the harbor front.

Wheat shipments from Fort William and Port Arthur in the crop year 1923-24 were 284,000,000 bushels, and the total

Photograph from Lawrence J. Burpee

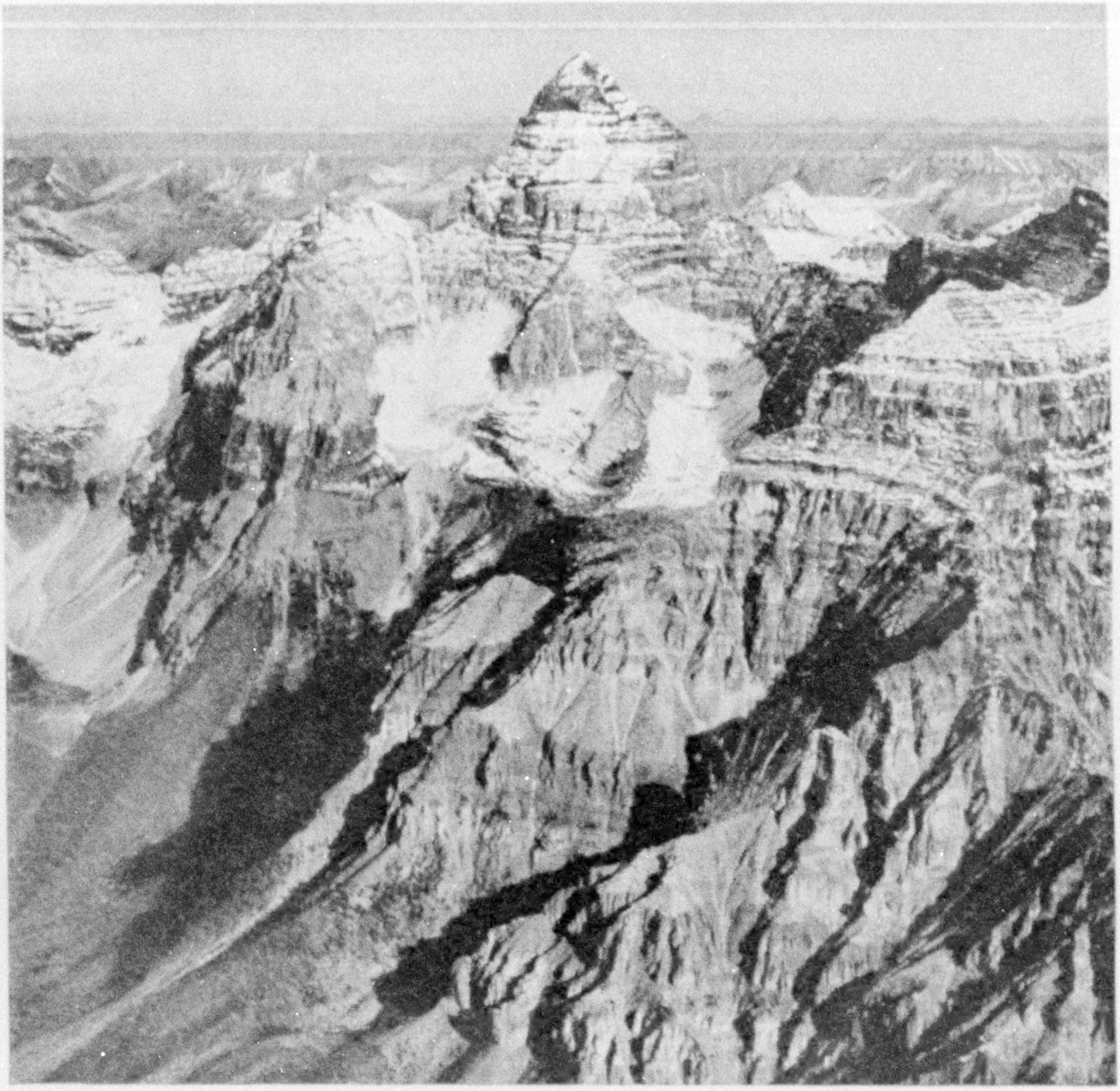
FORT KOOTENAY, ON LAKE WINDERMERE, BRITISH COLUMBIA

A striking memorial to the memory of the western explorer, David Thompson, has been established at Windermere, near the source of the Columbia River. It is in the form of a log fort surrounded by palisades with bastions faithfully reproducing a typical post of the fur-trading days.

© Francis Dickie

MOOSE MARCHING SINGLE FILE

T. W. Brewer, a forest ranger in the McGregor River district of British Columbia, made this unusual study of wild moose, the shy and wary denizens of the north woods, whose keen sense of smell makes them so difficult of approach. The half dozen animals are trekking single file through the heavy snow on the frozen surface of the river, the foremost moose breaking trail for those following.



Photograph courtesy Royal Canadian Air Force

MOUNT ASSINIBOINE, THE KING OF THE SOUTHERN CANADIAN ROCKIES, 60 MILES SOUTH OF BANFF (SEE TEXT, PAGE 461)

number handled in that year through these cities was more than 352,000,000.

Leaving Port Arthur, we hug the northern shore of Lake Superior, over Thunder and Black bays, lying between the mainland and the great wooded peninsulas whose bold headlands jut out into the waters of the lake and where another game reserve has recently been established; then proceed northward by the famous Nipigon River to Lake Nipigon.

## NIPIGON, QUEEN OF CANADIAN LAKES

During our journey we have seen thousands of beautiful lakes. Nipigon, from the air, is the queen of all. It is a magnificent stretch of water, studded with islands to break the monotony of too wide an expanse. The shores are bold and well timbered. Here, surely, is the happy hunting ground to whose quiet waters the spirits of departed fishermen come.

Winging our way homeward from Nipigon, we bid farewell to the forests and lakes of the North and, speeding across Lake Superior, we land at the Ontario Air Service's main base at Sault Ste. Marie.

Approaching the "Soo," we meet the converging steamship lanes from the upper lake ports, whose passage makes the St. Marys River one of the busiest waterways in the world.

At Sault Ste. Marie are the pulp and paper mills of the Spanish River Company and the steel works of the Algoma

© Hamilton Maxwell

THE GOVERNMENT BUILDINGS OF CANADA'S SECOND LARGEST CITY

Toronto, the political and commercial capital of Ontario Province, shares with Winnipeg the title of "the Chicago of Canada" (see page 439), since it is the Dominion's chief live-stock market and butcher shop. Its large department stores and skyscrapers make it, to Americans, one of the least "foreign" cities of Canada.

Company. On both the American and Canadian sides are many industries, drawn thither by cheap power and transportation.

Southward the aircraft flies across Lake Huron along the St. Clair River, over Detroit on the one side and Windsor on the other.

We proceed above the shore of Lake Erie past the garden of Ontario, the southernmost part of the Dominion—a rich farming and orchard country with many thriving industrial towns.

The Niagara River is now below us and the great falls.* In a few moments we pass down the gorge, over the Whirlpool Rapids, and out over Lake Ontario.

On our left lies the Welland Canal, connecting Lake Erie and Lake Ontario. The first canal was built in 1824-33 and the present one, which provides a 14-foot channel, dates from the reconstruction in 1872-87. The construction of the new ship canal, begun in 1913, was delayed by the World War and will not be completed before 1930. It will be 25 miles in length, with seven locks, each 800 feet long and 80 feet wide, with 30 feet of water over the lock sills (see page 466).

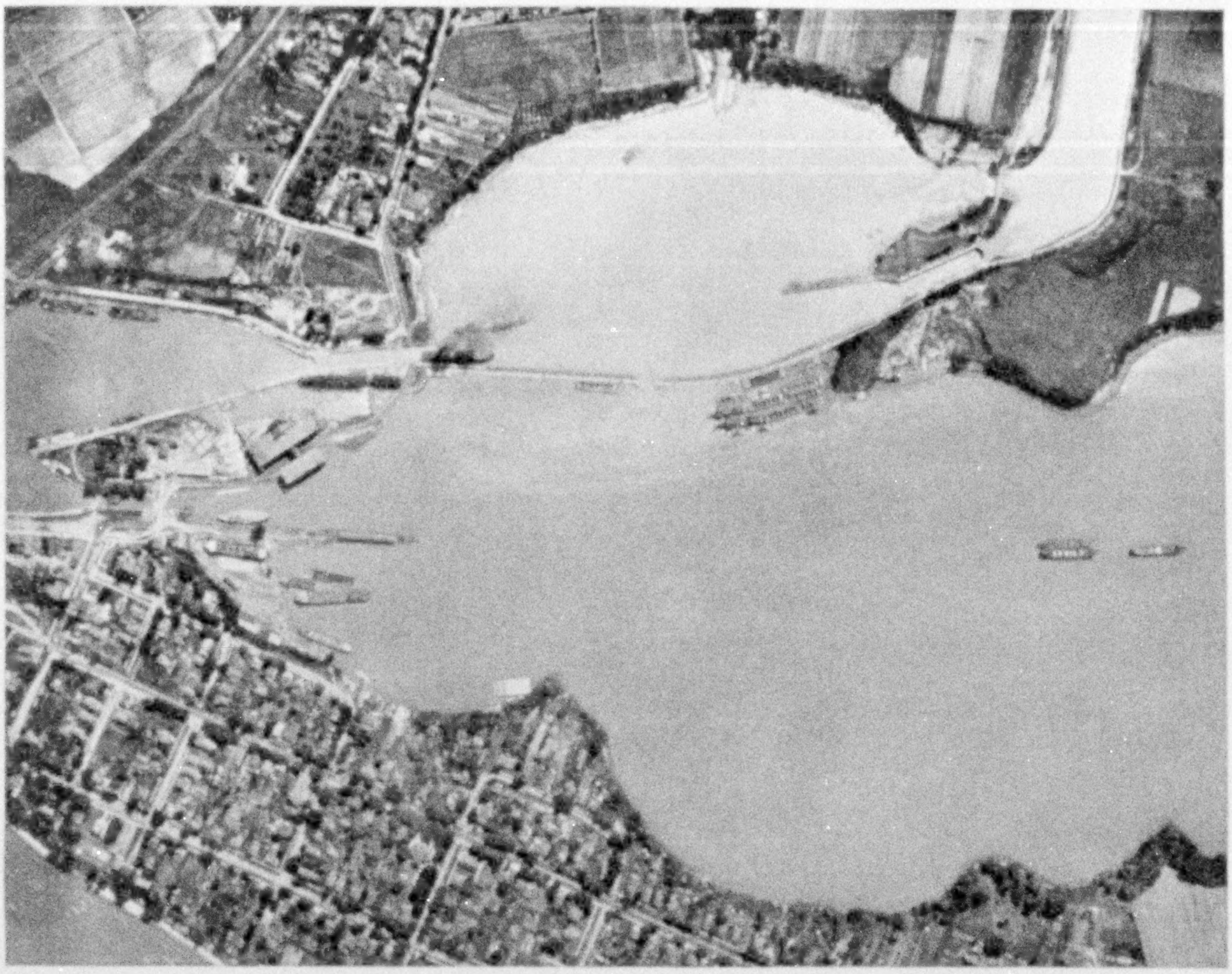
This waterway will enable the mammoth freighters from the upper Lakes to continue their passage uninterrupted to Lake Ontario and the head of navigation on the St. Lawrence.

THE ST. LAWRENCE WATERWAY—THE DOORWAY TO THE CONTINENT

Whenever the projected St. Lawrence shipway is finished, navigation for ocean-going steamships will be possible from the Atlantic to the head of the upper Lakes, making the world's greatest inland waterway and bringing ocean navigation to the doors of the industrial heart of the continent.

Our course is now north, 26 miles across Lake Ontario, to Toronto, the

* See "The World's Great Waterfalls," by Theodore W. Noyes, in the NATIONAL GEOGRAPHIC MAGAZINE for July, 1926.



Photograph courtesy Royal Canadian Air Force

THE ENTRANCE TO THE WELLAND CANAL, SHOWING THE LOCKS AND SHIPPING IN TRANSIT

The reconstruction of this waterway, begun in 1913, was delayed by the World War and will be completed in 1930 (see text, page 465), when the largest freighters can come from the upper lakes, steam around Niagara Falls, through Lake Ontario, and on to the head of navigation on the St. Lawrence.

capital of the Province of Ontario and the second city in Canada.

A landing is made on the natural harbor fronting the city and sheltered from the open waters of the lake by a long, narrow fringe of islands.

This city is a worthy capital of a great province, a financial and industrial center, and the seat of the largest university in Canada. The enterprise and civic spirit of its citizens are well known.

### THE LAST FLIGHT

In all our flights across Canada we have seen no district where prosperity and a well-ordered civilization are more evident than in western Ontario. Favored by Nature with a mild climate, a rich soil, with excellent transporation facilities on the great inland Lakes, with the rich and varied resources of the province tributary to it, and ample supplies of cheap power, southwestern Ontario is indeed fortunate.

Our last flight lies eastward along the northern shore of Lake Ontario, past the long-settled districts of Port Hope, Cobourg, and Prince Edward County, on to Kingston, the famous old town at the head of navigation on the Great Lakes, the seat of Queen's University and the Royal Military College—a quiet, old, gray limestone city, pleasantly situated at the head of the St. Lawrence, on whose broad bosom lie the famous Thousand Islands.

From Kingston by the Rideau Canal, over the many beautiful lakes tributary to its system and across the green fields of Carleton County, we speed to the Ottawa River and finish our voyage on its quiet waters, under the shelter of Parliament Hill.

# CARNIVAL DAYS ON THE RIVIERA

By Maynard Owen Williams

Author of "Struggling Poland," "Latvia, the Land of the Letts," "Through the Heart of Hindustan," "The Coasts of Corsica," etc., in the National Geographic Magazine

*With Illustrations from Photographs by the Author*

CARNIVAL seemed silly to my fellow traveler. An inconsiderate Corsica steamer had dumped him ashore at the foot of the old fortress hill of Nice a scant 12 hours before King Carnival swept gamin and tourist under his merry sway.

Unable to find a room, he was forced to share mine. As though that were not enough, the overpraised sky sprung a leak and the trees swayed before gusts no more balmy than February gusts often are in less-favored climes.

Bald, a trifle foppish, engagingly casual and unquestionably good fun, this delightful companion, whom I can still see sharing chocolates with ragamuffins beside the historic walls of Calvi, now threatened to be Anglo-Saxon and dull. If King Carnival was to drag such a one in triumphal procession, it looked as if chains or a cage would be necessary.

### RAIN DRIVES THE NICEANS INDOORS

Our hotel faced the Promenade des Anglais, built a century before to provide employment for the unemployed, and still so used.

The Jetée-Promenade, a holiday structure, was a bright bubble of cheer amid the storm; but the space before it was a blank.

Not a fair brunette paraded furs for the fashionable shops in the hotel lobbies; not a seller of dark glasses braved the gusts to offer ironic insult to the weather; the hawker of near-pearls had taken his almost-leather gift boxes under shelter.

Even the promenade photographers, who enable tourists to appear in the home papers as "Snapped on the world-famous Promenade des Anglais at Nice," had sought the cheer of the ruby lights in their dark rooms.

Not a Russian princess sold foreign journals from Vienna, Warsaw, Budapest, Berlin, Copenhagen, and Stockholm; not a raucous-voiced newsboy bayed "Le Matin" to the gathering gloom. Then, beyond the wide curve of the Bay of Angels, a ruddy sun beamed above the Estérel and the fitful blasts slowly died away.

At 8 o'clock the Concierge—what a pleasure it is to capitalize one who has so often made capital of us—announced that the jolly monarch would appear in person before his impetuous subjects.

My roommate, too bored to stay alone, joined me.

### THE LIGHTS BLAZE, CARNIVAL BEGINS

Shivering and dejected, we sat in the tribune seats which we had acquired because we were ignorant and new and Anglo-Saxon. Sellers of souvenir programs hawked their wares and a vender of lemon taffy relieved the tedium with something to chew on.

A small orchestra sat before us harping on the year's carnival melody, notable only for such whistleability as would make it known from St. Raphaël to Mentone within the week.

Then the lights blazed on, flooding the wet pavements with brilliance. The Avenue of Victory, arcaded with electric bulbs, became a fairy tunnel stretching away into relative darkness. Costumed revelers herded back and forth, passing the time until a band should animate their steps.

Tourists from Sauk Center and Inverness feverishly sought their seats. Then came outriders on splendid horses and a lumbering motor bearing His Majesty. The show was on!

In each Brobdingnagian car, a band lured costumed crowds about it while a score or so of seeming Lilliputians, distributed among its grotesqueries, danced as if on invisible wires.

A herd of plutocratic bulls, looking like cartoons of Wall Street; nightmarish alarm clocks, ten feet high; chambermaids with brooms for hands and scrub-

HIS MAJESTY KING CARNIVAL MAKES A TRIUMPHAL ENTRY

His reign is short but furious. On the evening of his arrival he parades the illuminated streets; then come two daylight appearances, usually, and a merry torchlight procession, following which he is burned at the stake on Shrove Tuesday night. The idea for the steed of the Brobdingnagian car was evidently taken from the bucking bronchos of the American West.

bing brushes for feet; the perennial homely man's contest; father wearing skirts and pushing a baby carriage overflowing with infants; an ejected householder endlessly carting his familiar belongings about in vain search of an apartment; jack-tars with sailboats for caps, reeling with studied inebriation—why multiply the examples of ludicrous and occasionally witty masques?

Band drowning out band; a mass of red fire crashing from its pedestal, making shadow-players of the maskers and projecting a giant spirit cavalry on the house fronts; youths so snapping the whip that a helpless policeman would act as bumper for the cast-off; girls in trousers, boys in petticoats, and gaiety in the van.

"No subtlety," growled my neighbor, turtling down into his raincoat. When the blare and dancing died away up the arcade of lamps, he was still a phlegmatic onlooker, still on the wrong side of the footlights.

### A VELVET DOMINO BRINGS THE CARNIVAL SPIRIT

As we walked hotelward a gendarme barred our path. There was a verbal duel, won by the police agent because he had chosen French as his weapon. A general sense of injury against King Carnival narrowed itself down to the definite fact that a man tired of silly clowning on streets sodden with confetti pulp could not take the shortest route to his hotel and bed.

A FUTURISTIC CONTRIBUTION TO CARNIVAL GAIETY

The spectacle at Nice is rarely subtle, but always amusing. "What the French can't think of—in the way of great cars topping the roofs" (see text, page 474), mounted groups, and ludicrous figures—leaves little to be desired in the way of mirth-provoking quips and cranks.

Just then a bright-eyed girl, showing perfect teeth below a black velvet domino and wearing a pink Pierrot, bombarded my companion's palate with purple confetti at close range (see page 470).

The duel with the gendarme had stirred his heart to its task and the confetti almost choked one already disgruntled. As he dashed from my side, I was disloyal enough to suspect that he resented such saucy impudence. The man would get himself laughed at!

He reappeared with a confetti sack whose red cotton strap crossed his breast like a burlesque diplomat's ribbon. The next I knew he and the French girl with the provocative eyes were mixing giggles, while each tried to scatter confetti where the other would be finding it for weeks.

After that he was more Norman than Anglo-Saxon. He must have exhausted three pillowcases of ammunition against countless Amazons. Every time I looked at him he was spitting out bright bits of paper, into the swallowing of which he had nearly been betrayed by his boisterous laughter.

Color not only suffused his face, but was making inroads on such portions of his polished head as were left uncovered by his velours hat, now most un-Anglo-Saxonly awry.

It was nearly morning before I could lure my roommate back to the hotel, where a scrubwoman, hoarding confetti in one corner of the lobby with a broom, seemed to resent the added treasure which we brought with us.

Before he dropped off to sleep he chuckled to himself. Evidently the littered

A YOUNG REVELER LIFTS HER MASK

This may have been the bright-eyed girl in the velvet domino and pink Pierrot who bombarded the author's companion with purple confetti (see text, page 469).

A LITTLE TOUCH OF SPANISH AMONG THE CONFETTI OF NICE

Nice's large population of French and Italian descent, augmented by visitors from other lands, cannot resist the joyous heart which beats beneath the motley.

A FLOWER SELLER À LA CARNIVAL

This Provençal in the rakish native hat sells some of the blossoms thrown in Nice's flower battle, the maximum price being $1.30 for 100 tiny bunches. To the flirtatious she offers a single cyclamen in ferns, to be kissed and tossed to the fairest lady in the parade.

FLORAL AMMUNITION FOR THE FLOWER BATTLE

In the glad revolt against routine and boredom, everyone from gray-haired grandmother to toddling infant dons, figuratively, the cap and bells, strips the market of flowers, and dances away to join the light-hearted sport "that wrinkled care derides."

A PARADE OF BIG BENS

The crowing cock surmounting each dial is probably not meant to represent the Gallic emblem, but merely the barnyard specimen whose untimely reveilles cause more consternation than merriment to rural sluggards. There isn't any logic in a carnival, anyway!

THE DANCE OF THE WEAVERS IN THE CITY OF PERFUME

To the stranger the most colorful features of the Riviera's flower battles are the Provençal dances, rendered in native costume to the accompaniment of old songs and choruses. This number at Grasse is similar to that at Vence, and was directed by the same man, acting as the shuttle.

PRESERVING A JUDICIAL FRAME OF MIND

The judges maintain the dignity of the bench during a plaster-confetti battle only by placing their faces under a wire screen, in order to avoid the flying pellets (see, also, page 480).

condition of our confetti-strewn room suggested to him the unmasking of the pink Pierrot.

MONTHS OF PREPARATION FOR THE EVENT

Even as a spectacle, the carnival at Nice is amusing. What the French can't think of—in the way of great cars topping the roofs; mounted groups impersonating anything from a knightly tourney to a set of chess men; ludicrous figures of carrots, cocottes, Catherinettes, and monocled men about town—the Italians, to whom Nice belonged when the first carnivals were held, add in the way of human interest.

The carnival occupies scores of artists and hundreds of workmen for months. Miles of silks and satins are dyed in the official colors of the year. The business as well as the appearance of the center of the city is transformed for weeks. Tourists accustomed to the best are forced to humble themselves before haughty concierges and reception clerks who but a month before were obsequious.

Carnival spreads his fame up Fifth Avenue and along Cockspur Street, so that winter sailings show a marked increase and a place in the Train Bleu is worth a fight. For him a big Comité des Fêtes gambles peace of mind against un-

WHERE THE PLASTER FIGHT IS THICKEST

Some of the scrappers of this battle car are equipped for their task with wire mask and cloak, and fear no injury from the hard lime pellets flung by their opponents. A first-class battling man does not use his hands, but catapults his ammunition with a long-handled scoop, which gives it force (see text, page 480).

settled and unsettling weather which mocks at prearranged schedules. Far into the night the committee plans how to prevent two persons from occupying the same chair at the same time and still keep from refunding money once lured into its coffers.

All that is stagecraft and management, as lifeless and dull to the outsider as the back-stage gridiron or a rack of numbered and lettered tickets.

AMATEURS RESPONSIBLE FOR SUCCESS

What makes a carnival is not the elaborate plans of professionals, but the touseled-haired amateurs, their arms around girl companions, galvanized into motion by the blare of third-rate bands and adding to the formal skeleton of scheduled pleasures the meat and substance of vulgar, but inoffensive, fun.

Strange as it may seem, the frivolities at carnival time on the Riviera are as innocuous as "Needle's Eye" and "Post Office" at a Donation Party in the little white church.

For a vapid dummy, Old King Carnival is a merry old soul. But it is the free guests and spontaneous jollity that furnish a spectacle worth seeing and an experience that makes boisterous revelers of staid visitors.

However unconventional it may be, the Riviera has its hidebound, brass-tacked,

A SHY "PETITE" OF OLD PROVENCE: BEAULIEU-SUR-MER, BETWEEN NICE AND MONACO

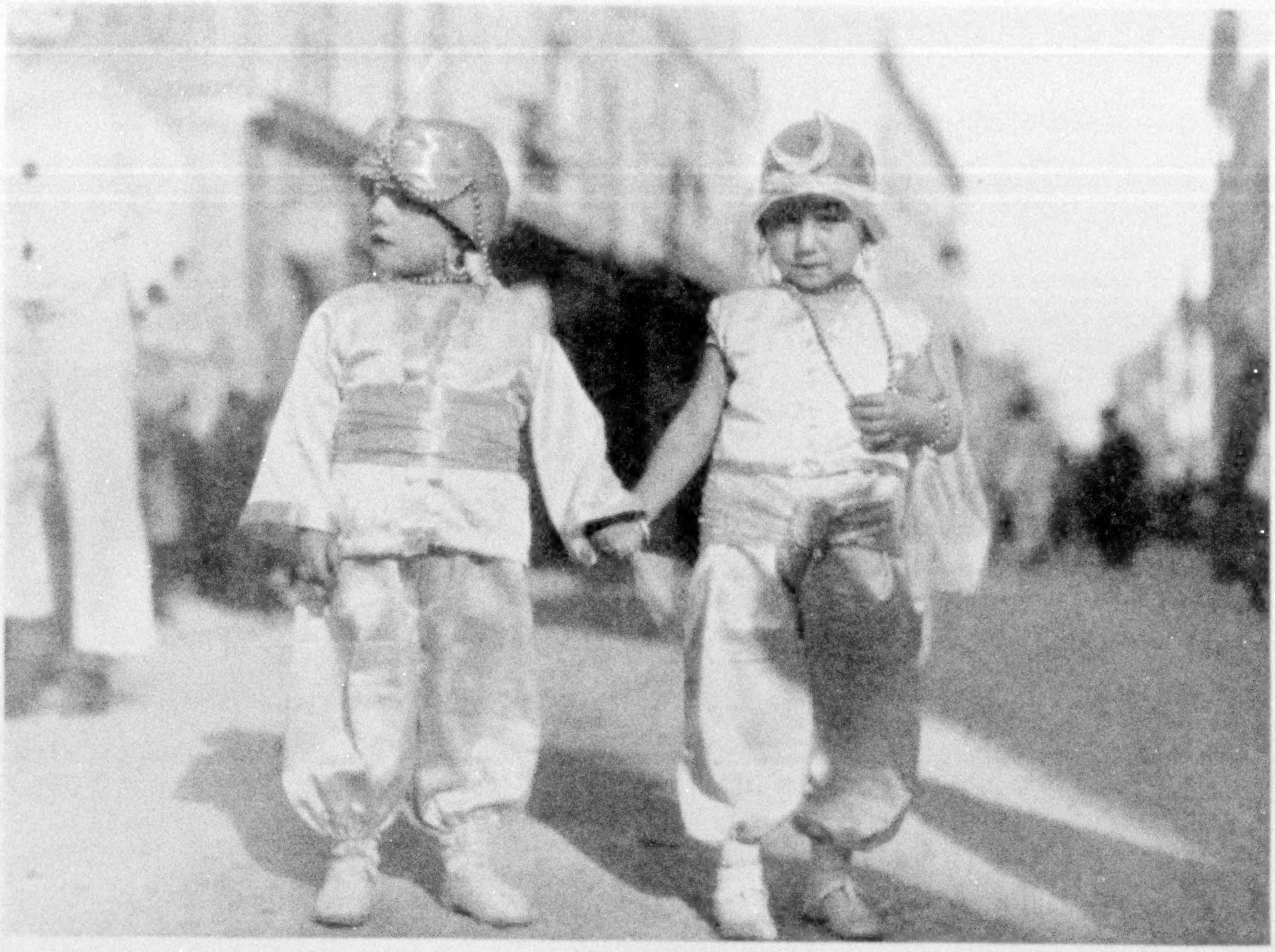
A MINIATURE IMPERSONATION OF NAPOLEON AT MENTONE'S FESTIVAL

YOUNG PROVENCE MAKES MERRY

The picturesque cortège has wended its way beneath the seventh-century banner to the public square, and native folk dances and songs have been enthusiastically rendered. Now the youths and maids of Vence the Beautiful wind up the day's events by a popular dance out of doors.

MADAME CARNIVAL AND HER LIVING HANDMAIDENS

Her Majesty does not ride in the same float as the King (see page 468), but occupies a lofty, precarious perch on the back of the second chairman. Here she presides in dignity over her frolicsome subjects, not the least attractive of which are the bewigged attendants at her feet.



ANYTHING DOES FOR A COSTUME AT MENTONE

Continents, ages, space, and time, all are wiped out by the carnival masquerade.

QUEENLY TARGETS OF THE SECOND BATTLE OF FLOWERS

These Argentine girls were costumed as Dutch maidens in the first fray, but changed to oriental priestesses for the second. Their flower-decked carriage was appropriately named the Thousand and One Nights.

CHINESE FANTASY AT THE CHILDREN'S FLOWER BATTLE

It's a long way from Canton to the Riviera, but fancy dress easily bridges the gap (see, also, illustration, page 476).

three-ply conventions. At baccarat, win or lose, one must look bored. "What does it matter?" is the expression to wear while sums for which men have murdered or married, stolen or slaved, are tossed negligently back and forth.

A FEW CONVENTIONS OBSERVED DURING CARNIVAL

King Carnival knows no such restrictions. "Do as you please" is his motto. In the proclamation which he issues to his subjects, including the police force, there is no mention of the fact that "liberty does not mean license," or that "true freedom is freedom to do right."

Yet there are conventions, even amid confetti showers. The masker must disguise voice as well as face, and preferably assume the costume of the opposite sex. This leads to some coarseness. But when some uninitiated town lad discovers his Junoesque curves slipping, his safety-pin, safety-first efforts are so sincere that one forgives embarrassment, of which he so evidently has the major portion.

Nothing which the most resourceful clown does on purpose is as funny as the accident into which, sooner or later, mad masquerade betrays the reveler.

It is forbidden for French soldiers in uniform to join in the fun. The inevitable occurs. A dutiful officer is on hand and with military honor and dullness refuses to wink the eye. He asserts himself and the majesty of the regulations. As by magic, a motley crowd appears. His tight military collar is no proof against a flood of confetti. One spirited maid presses a kiss on his cheek. Another pushes his *kepi* over his eyes.

Like a bear surrounded by mosquitoes, the officer, stunned by such shocking anarchy, slinks away, while the "Blue Devils," whom his ineffectual protest never reached, continue their sinful, happy way.

### WHY NICE'S CARNIVAL TAKES PRECEDENCE

The home town of Masséna, Garibaldi, and Catarina Segurana is a bulking place, a combination of ugliness and beauty, of industry and idleness, a city whose native life moves along independent of the tourist horde, numbering a quarter million visitors a year, just as the Paillon flows unnoticed under the Casino, the Place Masséna, and the perennially beautiful Gardens.

Its very size is what gives the Nice festival precedence over the carnivals of Cannes, Mentone, and Grasse. Carnival here has a popularity and vivacity of its own, largely because 175,000 Niceans of French and Italian descent simply can't resist the temptation to pay court to King Carnival, dance to his piping, flutter about his bright lights in gay masquerade, and forget such drab realities as affect life in Nice as surely as they do in Maple Valley or Kalamazoo.

"Foreigners" come and go. "Winterers" count as little as they do in India. Flower battles are won or lost. Regattas fleck the blue bay with dancing spots of white and night fêtes burst into polychrome brilliance above dark waters. Dog shows attract prize pups from a wide area. Yet Nice pursues its wonted way in the crowded old town, in the industrial districts of St. Roch and Riquier, or in the business centers.

But let King Carnival issue his revolutionary manifesto, doff his tricorne, and shoulder his Gargantuan way through the motley streets, and everyone, from wrinkled granny to staring infant, rushes to the show.

Just as "Old Ugly Face," the heroic Catarina Segurana, beat Janizaries over the head with her washing bat and raised the siege of Nice, so her modern sisters desert their frail boxes beside the Paillon, in which they swash and paddle their laundry, to do battle on the confetti-paved Avenue of Victory, that victory which comes when pleasure triumphs over toil.

### PLASTER CONFETTI A BANE AND A MENACE

In their glad revolt against routine and boredom, these warm-blooded revelers keep their heads. Wine flows freely, but drunkenness is not common. Thugs, pickpockets, and camp-followers are strangely absent. Seldom does anything happen to which serious exception can be taken.

Carnival and paper confetti, even if some urchins garner their ammunition from the ankle-deep streets, make a happy combination. Carnival and plaster confetti smack of the days of molten lead poured from the roof of Notre Dame or the walls of Carcassonne.

Those who know wear wire masks and dress in cloaks with a ruffled hood to protect the ears; but the splendid white horse ridden by the marshal, in his red hunting jacket, has to stand the pelting without benefit of armor. Plaster confetti is the size of BB shot, but somewhat lighter, and friable enough to become chalky dust beneath one's feet.

There are those so humane and soft-hearted that they fight a plaster confetti battle with bare hands. That is amateurish and futile.

The proper thing is not a canvas bag from which impotent handfuls of ammunition are feverishly fumbled. The manly way is to buy a box of the stuff, say, three feet long and half as broad and deep, and a tin scoop, such as went with the old cracker barrel in the days when hygiene and vitamins were in their infancy. With such equipment a sturdy and determined battler, lining out his plaster pellets as from a Roman catapult, can draw blood from an unprotected face.

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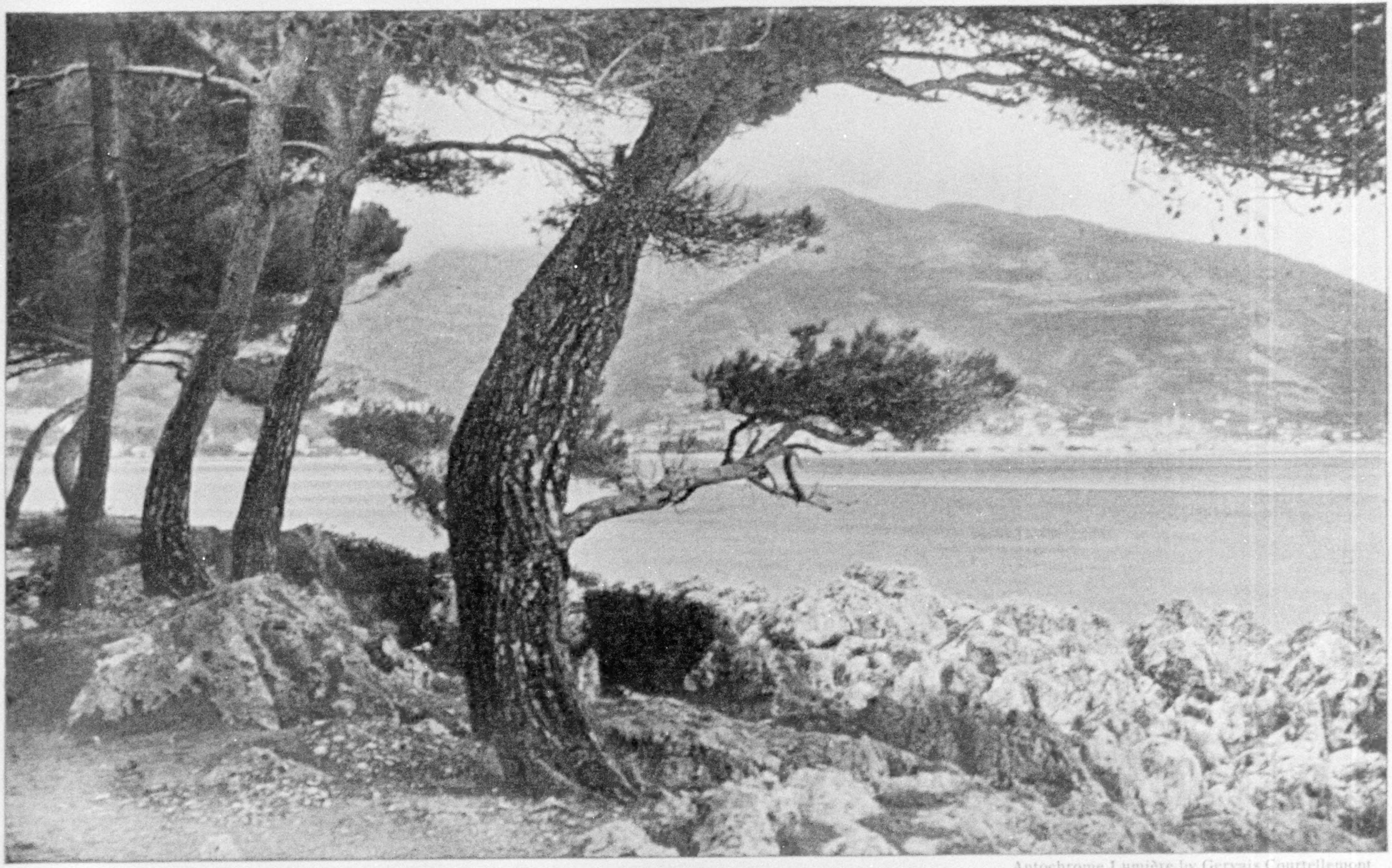
Autochrome Lumière by Maynard Owen Williams

A DAUGHTER OF THE SUN

The natives of Vence, a "city of medieval witchery" in southern France between Cannes and Nice, minister to the foreigner in winter, and also grow stocks for flower lovers of the frost-bound north. Now and then the maidens, in native costume, perform the farandole, that whirling national step of the land of "dance and song and sunburnt mirth" (see also Plate VII).



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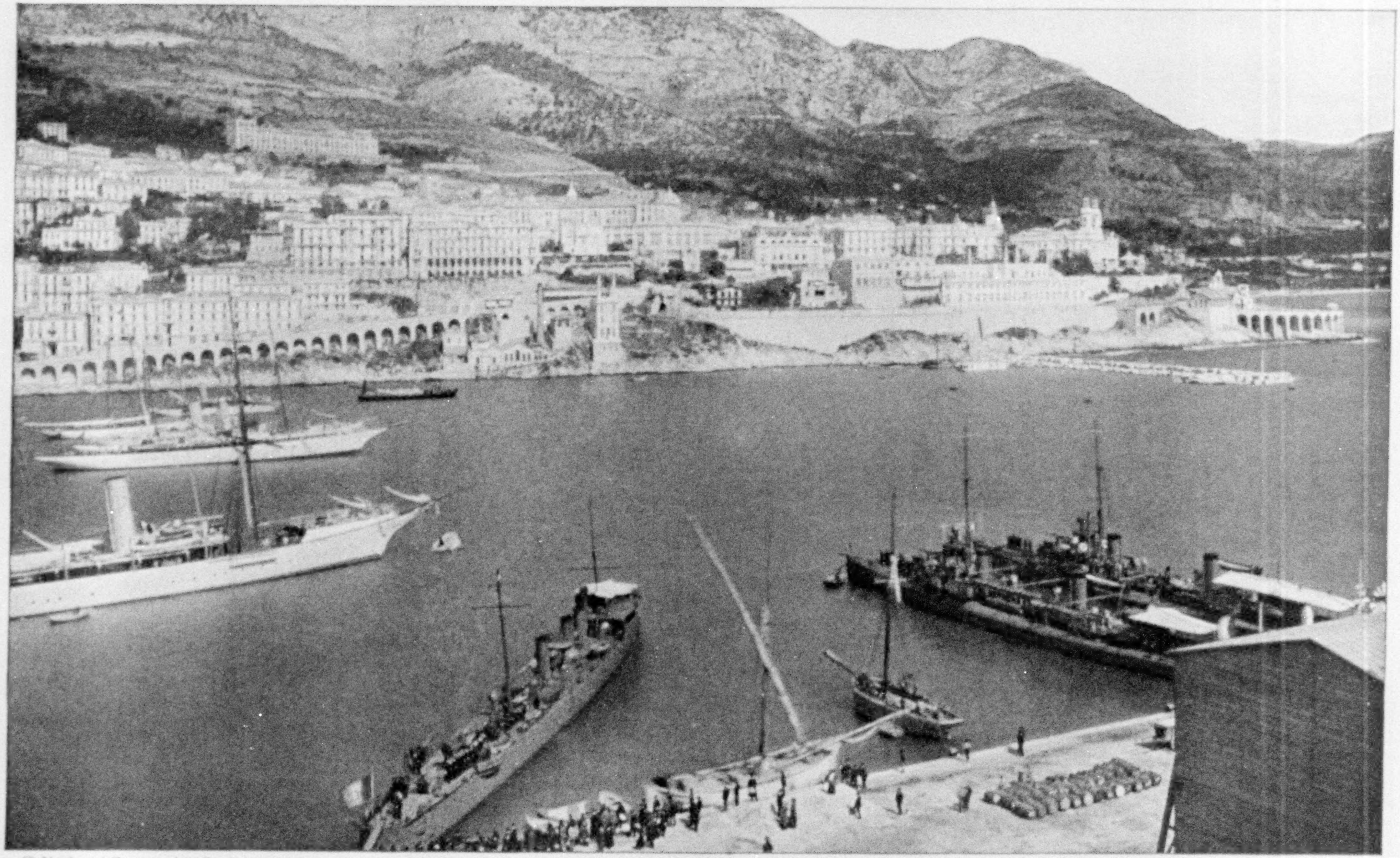
Autochrome Lumière by Gervais Courtellemont

ALONG THE COAST OF BLUE

The heart of the Riviera lies between Cannes in France and San Remo, across the border in Italy; here are to be found its finest shops, its largest hotels, and most charming villas. When the carnival is over, however, and golf, tennis, polo, and yachting pall, "mere living" brings out the real savor of this region for the tarrying stranger.



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MONTE CARLO FROM THE ROCK OF MONACO

Among the chief attractions of this smartest of Gallic cities are its subtropical gardens, excellent concerts, ballets, operas and sports. In its chic harbor, superior yachts, their caste forgotten, swing in the tide with fishing boats and tourist-steamer tenders (see also Plate XVI).

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KING CARNIVAL'S CAPITAL, SEEN FROM CHATEAU HILL

This "hill with a great history," where the heroic laundress (see text, page 480) shared the dramatic glories of the siege of 1543 with Barbarossa, the ruthless corsair, is now only a wooded height, the site of a public park. Palms, aloes, and cacti flourish amid remains of the old citadel and heaps of tumbled masonry. Few traces remain of the castle razed in 1706 by the Duke of Berwick.

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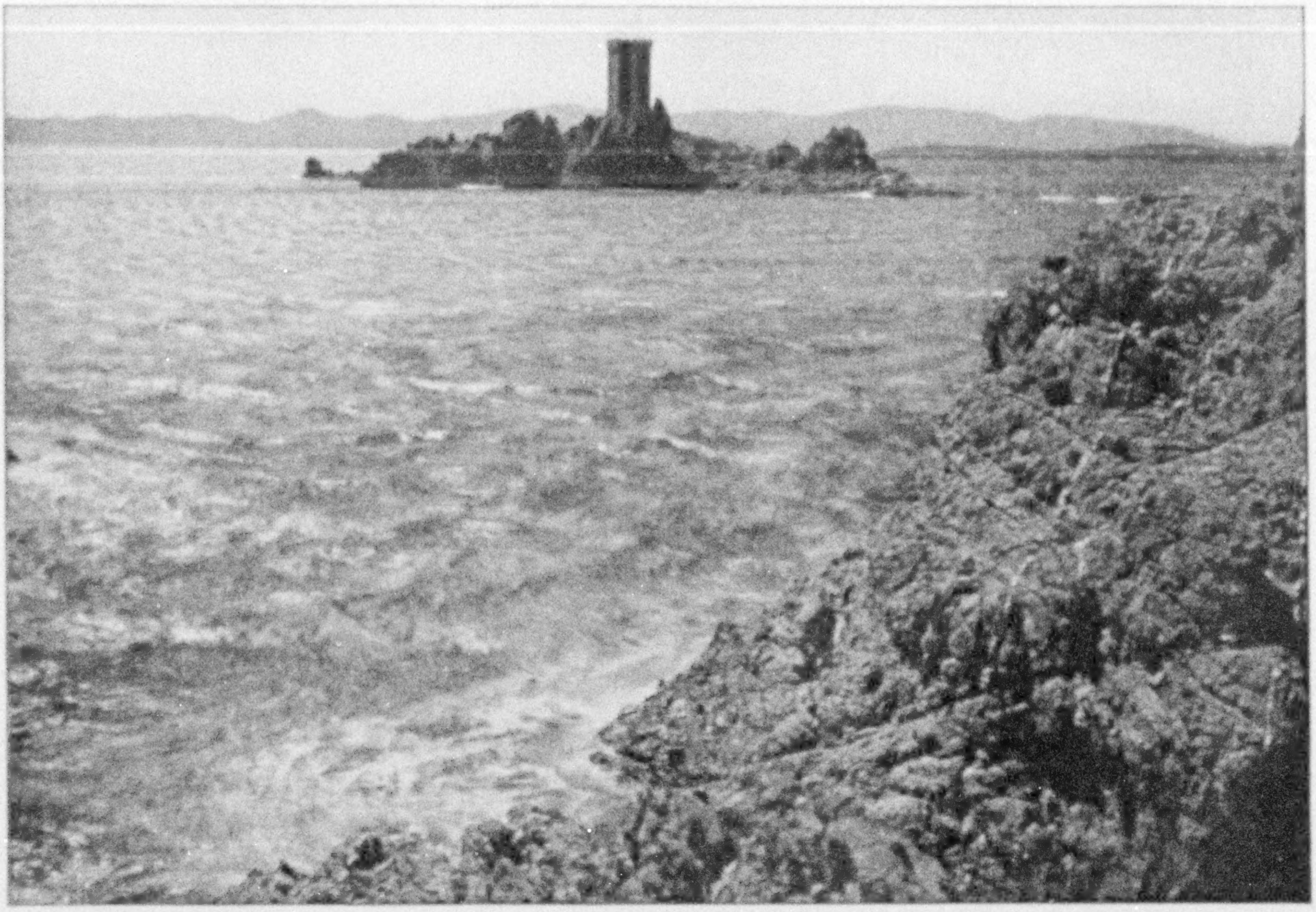
MENTONE IS A CLIMATIC PARADISE

The semicircle of mountains shelters this last Mediterranean town of France, on the Italian frontier, from the dry, cold *mistral*, the violent wind from the north, and enables lemons, oranges, and a vast variety of flowers to flourish in the open. Enjoying its brilliant sunshine, with the blue sea and olive gardens under his eyes, Stevenson spent a winter here and wrote "Ordered South."



A SENTINEL OF THE COAST: THE GOLDEN ISLET, AT AGAY

This harbor for coasting vessels and fishing craft, fifteen miles southwest of Cannes, is an excursion center to the tremendous upheaval of red porphyry known as the Estérel (see also Plate VIII).

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THE GOURD FESTIVAL AT CIMIEZ

During the Riviera's tourist season, this attractive suburb caters to the souvenir habit with gaily decorated gourds. It is situated on high, villa-dotted ground above modern Nice.

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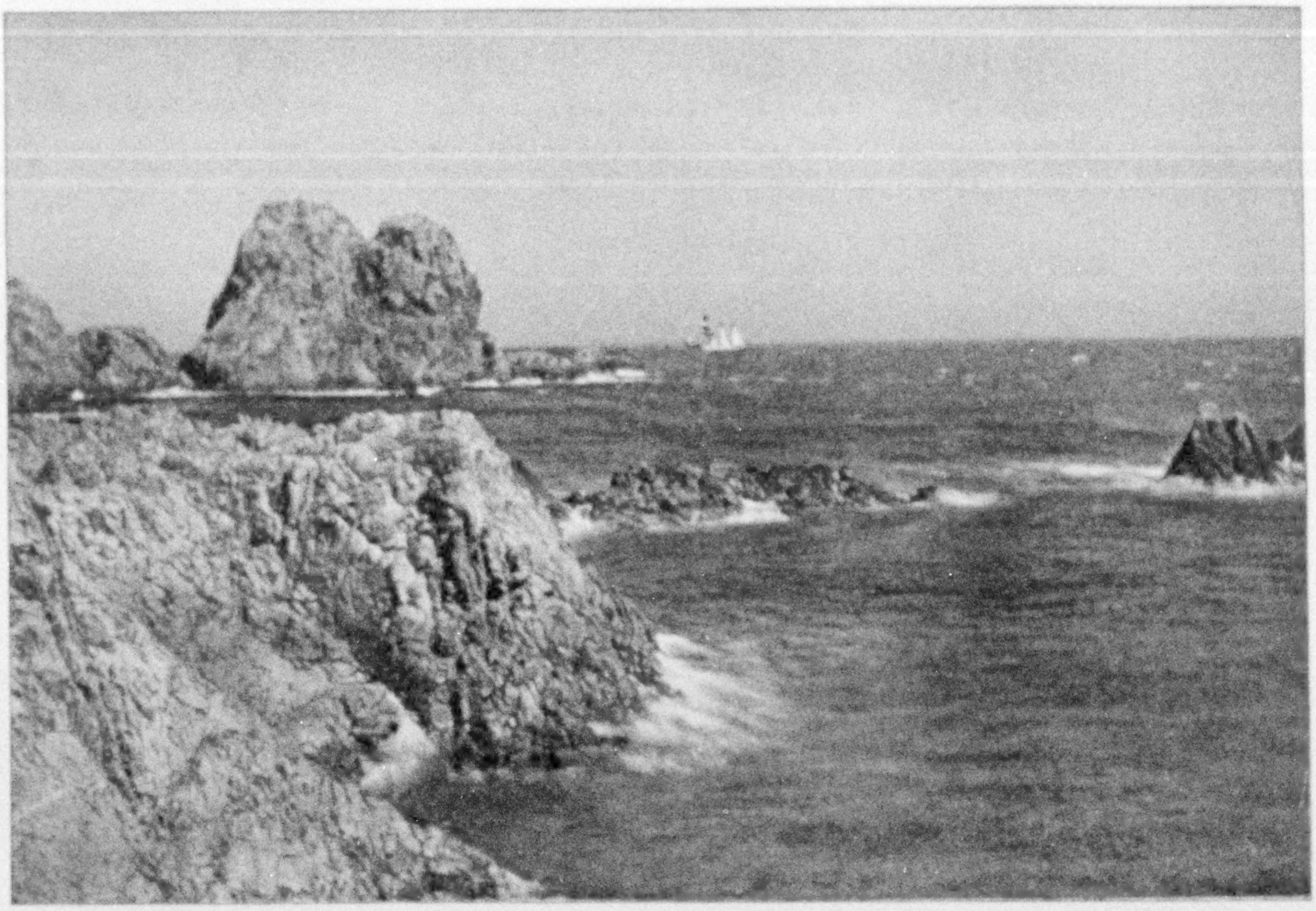
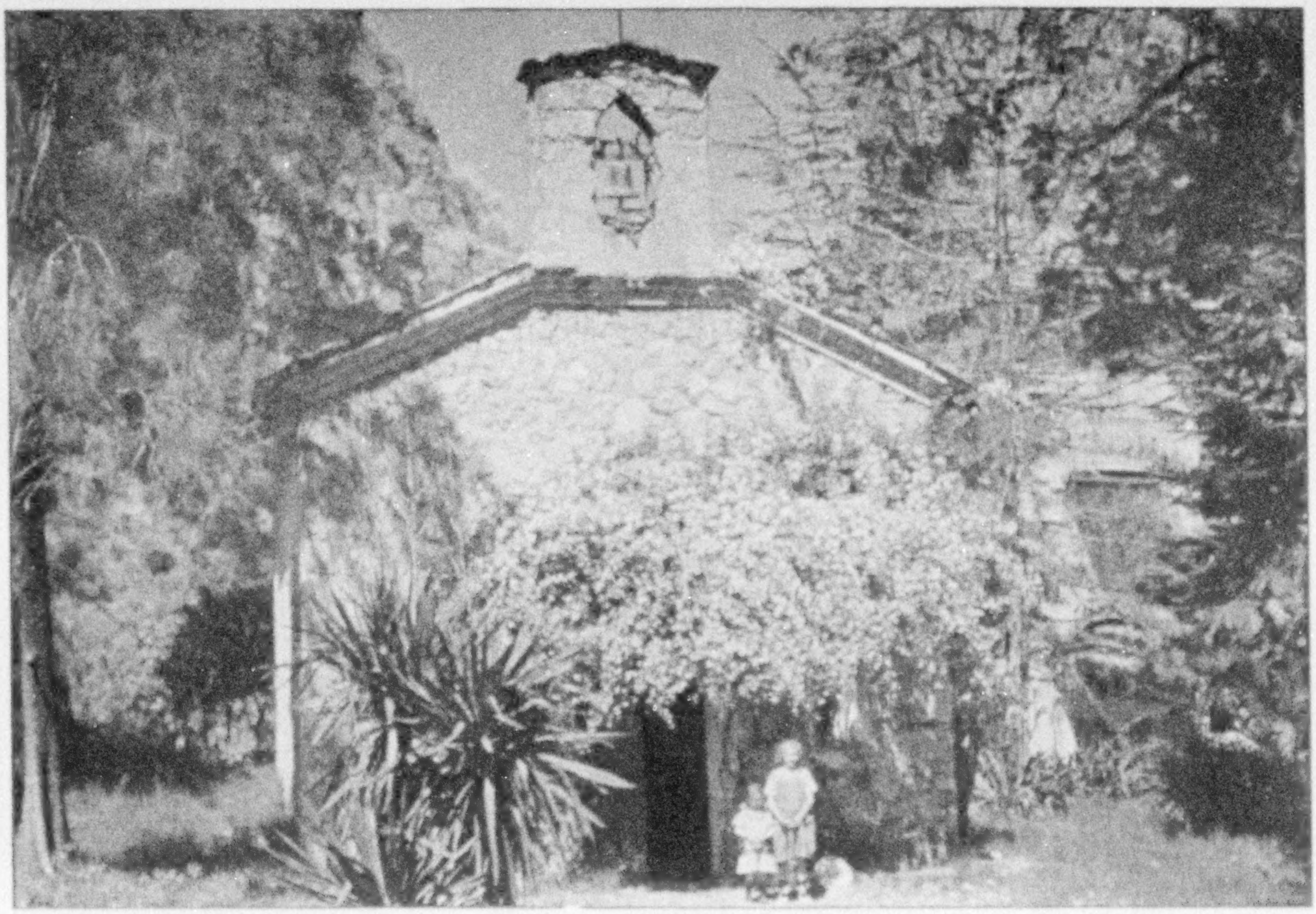
THE QUEEN OF YOUTH AND BEAUTY AND HER MAIDS IN VENCE

After the special events on the Riviera are over, the lingering traveler awakes to its real charm, especially to the irresistible appeal of dainty costume and the joyous Provençal temperament.



BRILLIANT ARABESQUES OF THE MIDLAND SEA AT AGAY



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FLOWER-MANTLED PIETY AT PONT DU LOUP

The picturesque gorges of the Loup, visited from this hamlet, are six miles long. A footpath close to the stream leads through the purple gloom of the rocky ravine past several waterfalls.

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MARTIAL MUSIC FOR THE FLOWER BATTLE AT GRASSE

A fellow-citizen of the artist, Fragonard, and of Admiral de Grasse, a hero of the American Revolution, this fifer and drummer exploits Grasse's thirty-six perfume distilleries.

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Autochrome Lumière by Hans Hildenbrand

THE HARBOR OF THE PEARL OF THE RIVIERA

In 1763 Tobias Smollett found this aristocratic resort of Cannes "a little fishing town, agreeably situated on the beach of the sea." To-day it is a playground for Europe's fashionable world, and, excepting Cowes, few harbors shelter more palatial yachts. Near Cannes is the Ile Ste. Marguerite, where the Man in the Iron Mask was imprisoned.

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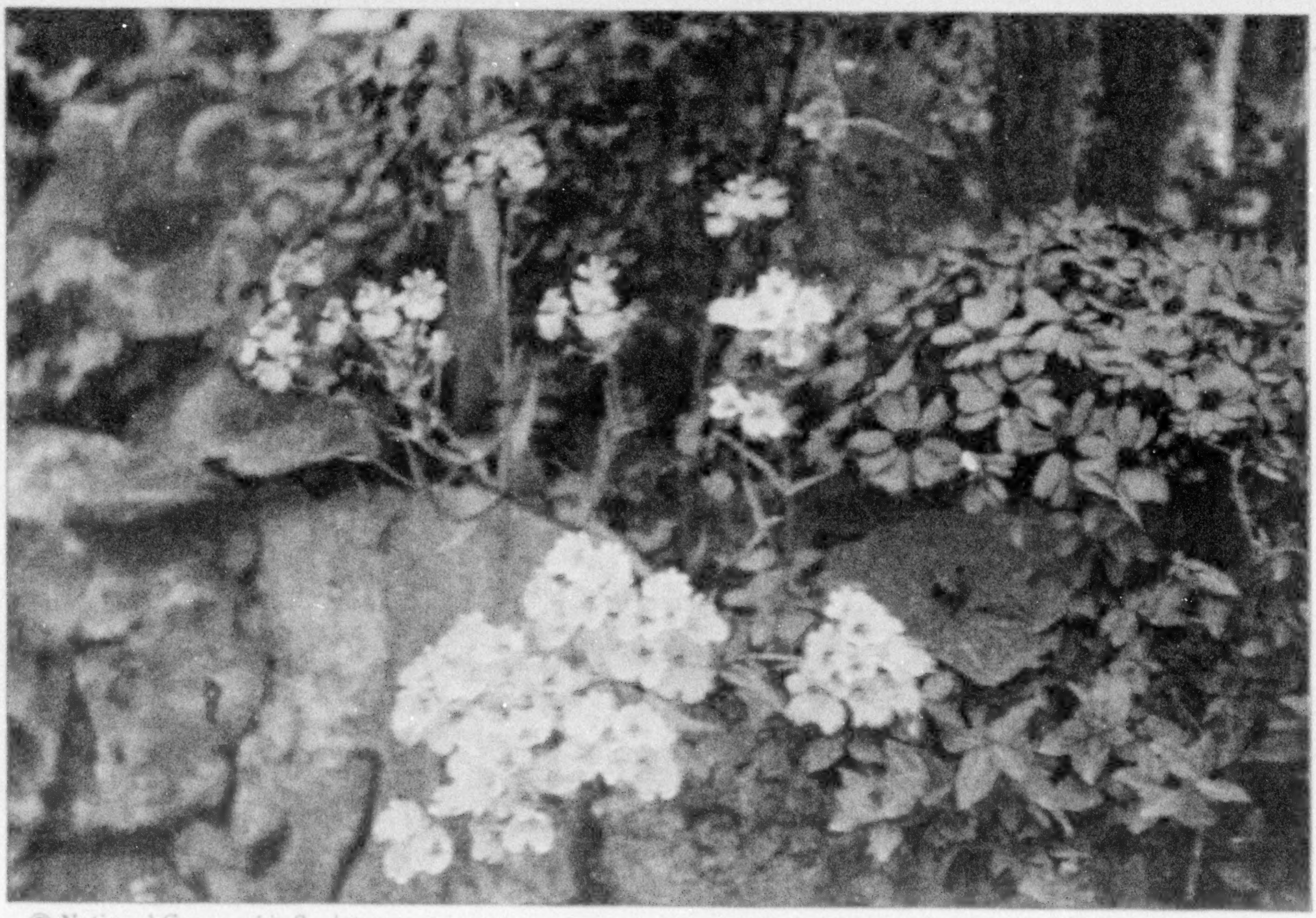
MAIDS AND YOUTHS OF GRASSE

Many heads turn to watch the bevies of Provençales leaving Grasse's perfume distilleries at noon for their midday meal. From the sunny fields surrounding this little town come incredible quantities of flowers of all kinds, and in the rose season the factory girls sit waist-deep in blossoms, picking off the petals.

EXOTIC FLOWERS ON THE AZURE COAST



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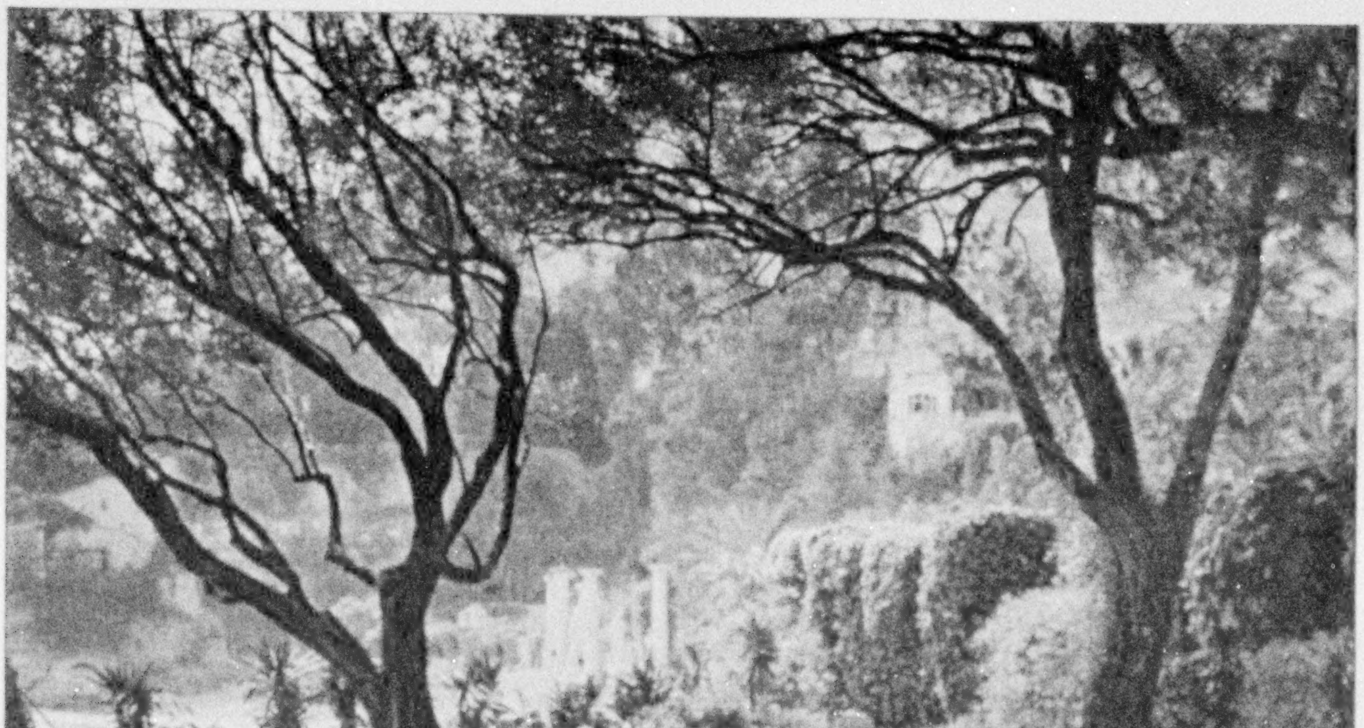
FLORAL TREASURES OF THÉOULE'S CRANNIED WALLS

The Côte d'Azur lures the visitor with its life and color, its blue of sea and sky, palm-shaded, orange-fringed shores, brilliant cliffs, and cozy, sheltered bays; its golden sunshine and balmy air. But not the least of its glories is a profusion of fragrant blossoms and plants.

MISTRAL-SWEPT ST. RAPHAËL FRONTS JULIUS CAESAR'S BAY



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A VILLA AT ROCK-CLINGING ROQUEBRUNE

Many flags have waved over this quaint tenth-century town, one of the best existing types of the fortified villages constructed along the Mediterranean coast after the expulsion of the Saracens. Like Mentone (see Plate V), it formerly belonged to Monaco.

SIXTEENTH-CENTURY TOURETTE-SUR-LOUP SEEMS GLUED TO THE TOP OF A CLIFF

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A SHRINE OF NAPOLEONIC MEMORIES

At St. Raphaël the Corsican landed upon his return from Egypt, and from it he left to board the warship which was to carry him into exile at Elba. Two miles around the bay to the west is Fréjus, the harbor chosen by Julius Caesar and Augustus for the establishment of a naval station, the key to Gaul.

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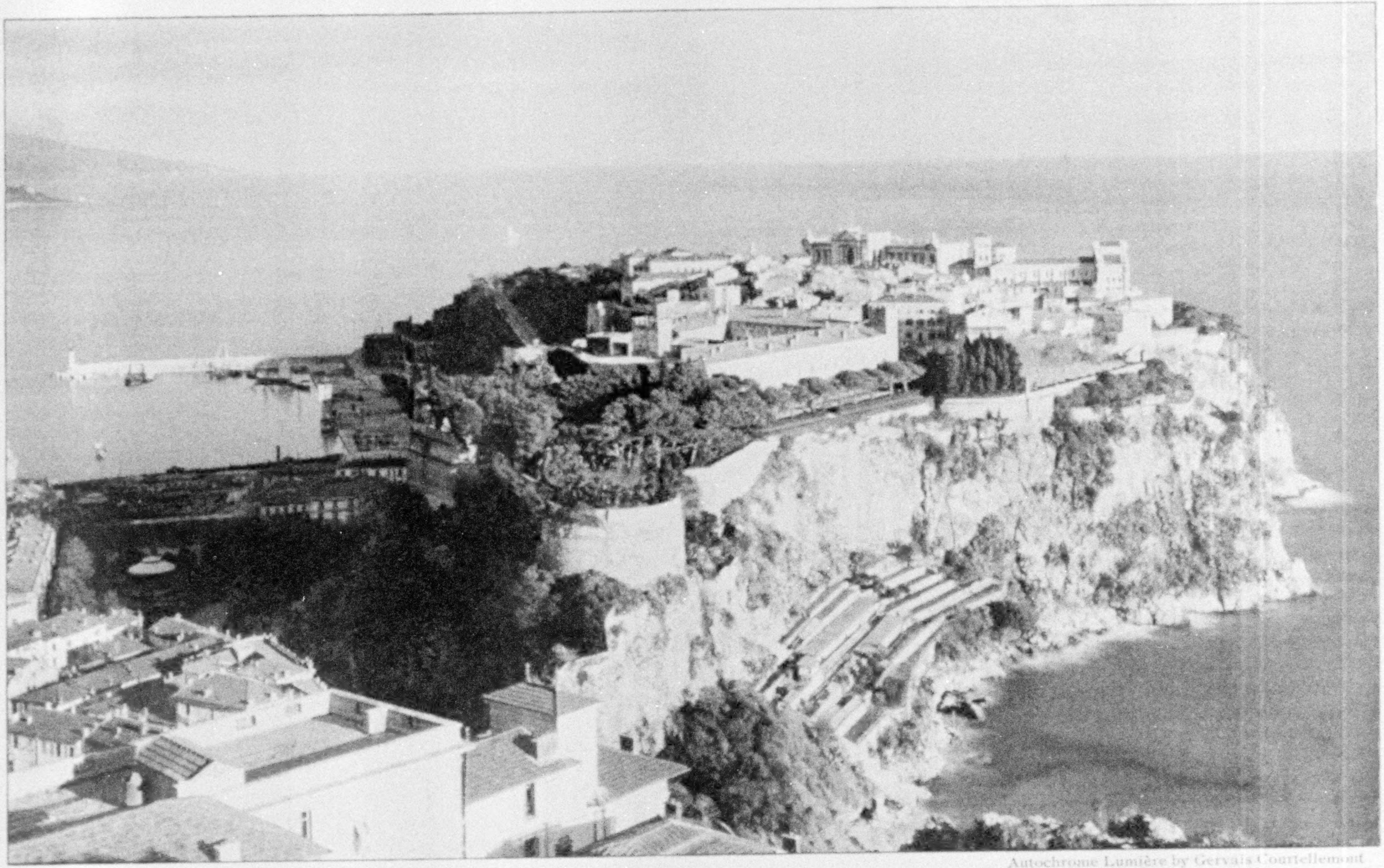
CLASSIC BEAUTY DISTINGUISHES THE PROVENÇALE

Various races have left their stamp on the Land of the Troubadours and on its song-and-laughter-loving inhabitants. Mobile features framed in ebony hair, lit by dark, lustrous eyes, and set off by the colorful native costume, make a memory-haunting picture of this fair *citoyenne* of old Grasse (see also Plates IX and XI).



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Autochrome Lumière by Gervais Courtellemont

THE ROCK OF MONACO

The smallest principality in Europe boasts one of the world's most important oceanographic museums, housed in the palatial colonnaded structure in the background. The museum was founded by the late Prince Albert of Monaco sixteen years ago and contains the deep-sea collections made by him on his numerous scientific cruises.

After the pellets are used up a mass of heavy dust remains. As my wife and I came away from the skirmish, trying to brush the thousand pockmarks from our clothes and wondering in what tea room we could rinse the dust from our throats, a heavy truck of returning battlers rolled past and several pounds of lime engulfed us.

For a moment I forgot that King Carnival ruled the town, and what I considered righteous resentment rose within me. But my companion saved the situation. She had seen Western drama and alkali dust.

"Come on, Dusty Farnum," said she, "we'll have our tea at home."

### NICE'S FLOWER BATTLES ARE MORE BATTLES THAN FLOWERS

In a flower battle, Nice puts the accent on the battle instead of on the flowers. It makes the concession of forbidding the throwing of bouquets tied with baling wire, and of selling nosegays rescued from the mussy street, but the promenade is as crowded and disordered as for a Corso Carnavalesque.

A minimum decoration, consisting of sickly bouquets tied to the lanterns of an ordinary carriage, will enable its driver to rent it to those who don't know any better, and to occupy a place in the parade. Bowers of beauty are sandwiched in between rheumatic hacks, which, in obeying the letter of the law, have exhausted all spirit whatsoever.

These obstructions are filled with deluded folk, who spend the morning picturing themselves in the heart of a flower battle and the rest of their lives wondering why they ever tried to compete in a beauty parade with those whose chariots are completely hidden by choice blooms.

For flower battles, one does better to go to Cannes, Cagnes, Grasse, Mentone, or Beaulieu, where the event is a sort of family affair, where the ammunition is sweeter, the carriages and cars more uniformly dainty, and the spirit more cognizant of the fact that a flower should be a graceful tribute rather than a missile.

Wherever it takes place, a flower battle is a charming spectacle. Youth, beauty, and flowers, mixed with a gay and holiday spirit, make a combination hard to beat. Some boor may bombard one with a dusty bouquet rescued from the mussy pavement; but to have a queenly figure, framed in a pannier of violets, brush a fragrant nosegay with her lips before tossing it to a bespectacled veteran of an unromantic succession of stenographers is to give the tired business man something to think about.

And when his own bouquet is thus blessed and tossed back, he wishes that old Ben Jonson had not said the last word on the subject three centuries ago. A beautiful woman in a flower-decorated carriage drawn by sleek and prancing horses has never yet hurt the tourist business (see illustrations, pages 470 and 478).

For many, carnival is only one event in the Riviera calendar. In the low plains of La Napoule and at Cagnes, atop Mont Agel, and in the mountainous amphitheater at Sospel, English-speaking men and women tie themselves into knots and let fly at inoffensive but sometimes exasperating golf balls. Suzanne, the graceful, and Helen Wills, the gracious, lead their satellites from the tennis courts of Cannes to those of Nice, Beaulieu, Monte Carlo, and Mentone.

Coveys of motor cars dash in from all over Europe, now roaring their reckless way up the mountain roads, now standing in meek and simpering array amid banners and allowing the fairy figure on one radiator cap to gossip with the stork or wings on another.

In the hotels, artists with an unerring eye for the exotic are transforming expansive but prosaic dining rooms into Mexican jungles, Nikko temple areas, Nero's gardens, or Aladdin's caves.

### PROVENÇAL COSTUMES AND DANCES DIVERSIFY RIVIERA CALENDAR

Old Provençal costumes are brought out and the farandole danced. Village girls in striped skirts, fancy shawls, and lace caps make the visiting movie queen with the single-track eyebrows look artificial and forced.

The Prince of Monaco has his birthday during the tourist season, and the ramparts of the great rock are outlined with red and white glasses of oil with floating wicks, which cast the Monegasque colors on the weather-beaten walls.

CARNIVAL REVELERS AT MENTONE

Though the festival's motto is "Do as you please," a few conventions must be observed, even amid confetti showers. Maskers must disguise voice as well as face, wear the official colors of the year, and preferably the costume of the opposite sex (see text, page 479).

Up the incline facing Monte Carlo a noisy torchlight parade climbs, with its flambeaux reflected in the chic little harbor, in which a dozen very superior yachts, forgetful of their caste, placidly paddle in the same pool with fishing boats and the tenders serving the tourist steamers, which here unload their "cargoes of millionaires" from the Mediterranean and Around-the-World cruises.

On the terraces outside the wedding-cake Casino a poor but enthusiastic band plays to the natives of the Principality, most of which lies within sound of their cornets.

In the salons grubby persons of that age which Anglo-Saxons call "uncertain" and the French call "certain" divide their attention between a record book, a green cloth marked like a complicated hop-scotch field, and a playful little ball, which is credited with more sense than any ball of its kind could reasonably have.

Across the way, at the Sporting Club, such quality folk as do not like Cannes or the Greek gambling syndicate do their playing in fresher air than that which was sealed into "The Kitchen" when the Casino gaming rooms were built.

### THE TRAP SHOOTING

About this time the often silly, but seldom vicious, Côte d'Azur offers to its visitors a spectacle which seems more wicked than all the gamboling excited Franco-Italians indulge in under the fe-

FLOWER-ARMORED CARS FOR THE CARNIVAL SIEGE AT CANNES

The defenders of these dainty floats fear nothing worse than a bombardment of blossoms thrown lightly by "enemies" who believe that a flower should be a graceful tribute rather than a missile (see text, page 497). The prettiest cars will be named as prize-winners.

nient eyes of King Carnival or all the gambling over the eccentricities of an ivory ball seeking out the red and black, odd or even.

Below the railway tracks, looking off toward the walls of Fort Antoine, where the aloes—God's candelabra—have replaced the obsolete cannon, there is a semicircle of sward with several paths leading from innocent-looking boxes to a place where a fat man awaits with gun in hand to do his dirty work.

A trap is sprung and a pigeon, one of those seen in crates piled head-high beside the Monte Carlo station, makes a dazed dash for liberty. There is a sharp crack from one barrel or two and a gentle bird with a rainbow for a necklace becomes a crazy, mangled thing flopping on the grass.

A thoroughbred dog, the best gentleman on the grounds, picks up the bleeding bird and, without mouthing it, lays the sad sacrifice at the feet of a master who, in his sane moments, is quite a decent fellow.

## DISCOMFORT FORGOTTEN IN CARNIVAL RUSH AND COLOR

King Carnival knows his business. He crowds the hotels so full that during his reign no one dares leave one place for another. Travelers accustomed to luxury tuck themselves into hallways or bathrooms and smile at the discomfort. When they secure decent rooms, they stay on to

PARISIAN FASHIONS CURTSY TO PEASANT DRESS AT GRASSE

To the women of the little towns and villages is entrusted the preservation of the costumes, dances, songs, and legends of old Provence, the precious heritage bequeathed them by Frédéric Mistral, the poet who mended the rifted lutes of the troubadours and whose mother's tears inspired the rebirth of a language. At carnival time the native dress adds to the unsophisticated charm of happy faces.

enjoy them. There is noise and glamour and rush and color and go.

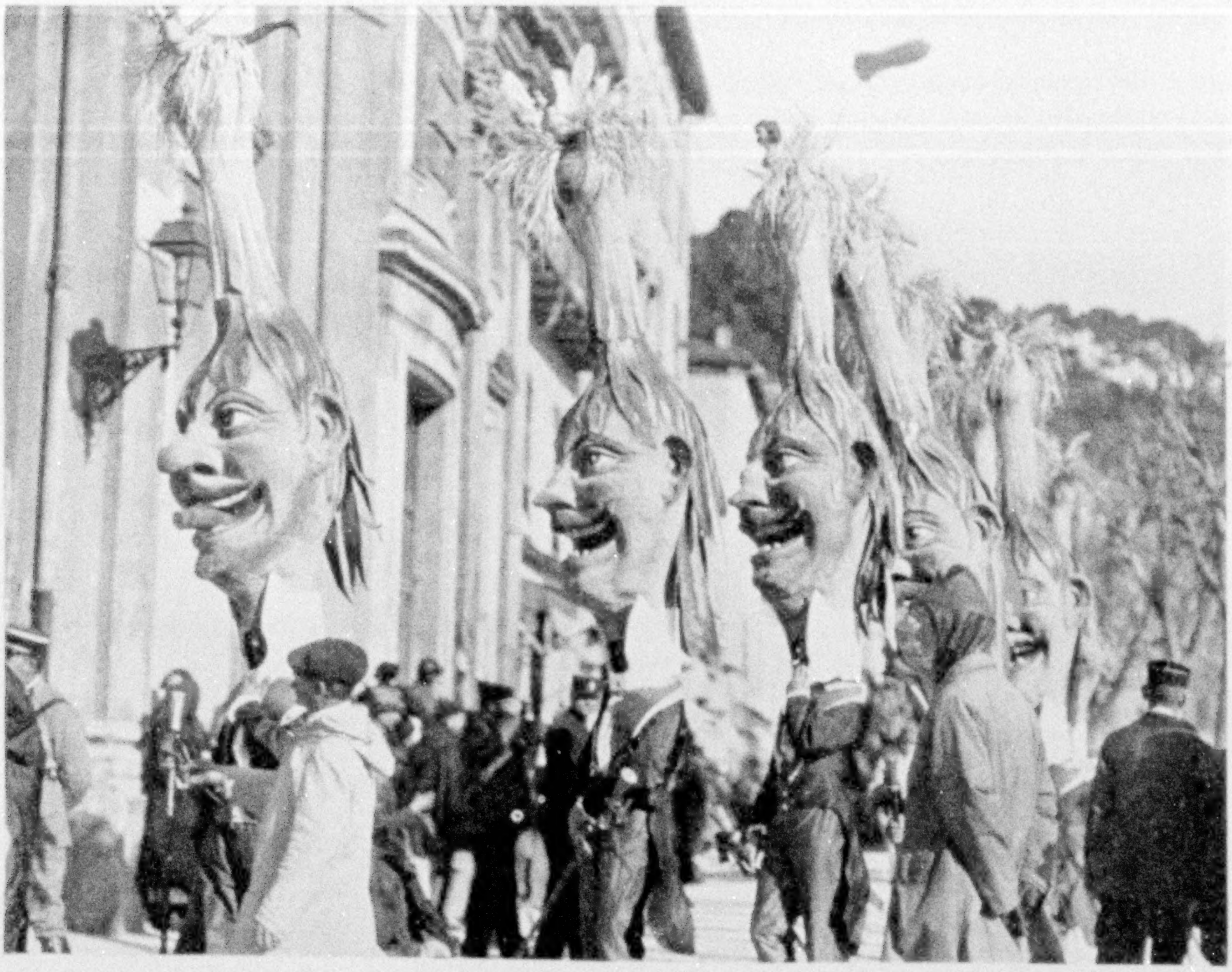
Then one day the special events are over. The leisurely traveler awakes to the fact that, perched on the cliffs of Provence, there are rows of old hill towns, once cities of refuge from the Saracens or Barbary corsairs. Also, stretching out into the sea, are irregular peninsulas where one may spend delightful hours scrambling among the pines or gazing back at the southward-facing land. And beyond all this charming countryside, changing so rapidly before realtors, who in meeting the demands for more villas are causing shoddy shacks to spring up on grounds of once proud domains, there is a land to see.

Then spring takes command. Flowers in bewildering variety divert one's attention from the imported palms and aloes. The manicured parks and stiffly formal gardens of stock and pansies lose the appeal which they had when winter hid in the shade.

One hotel after another closes its doors. One *bonne-à-toute-faire* after another returns from the service of the funny foreigner to chatter in clipped Midi dialect under the cool archways of some gray-brown old town in the Alpes Maritimes.

The plain below Grasse becomes a rose garden. In the Estérel the *genêt* lifts its golden blossoms from the red sandstone soil under the evergreens.

The nature-lover feels the world awaking from the exotic greenness of winter to the lush freshness of the real spring and, with a "Thank goodness, the season is over," lays down the dripping nozzle



GROTESQUERIES MARCH IN HONOR OF KING FOLLY AT NICE

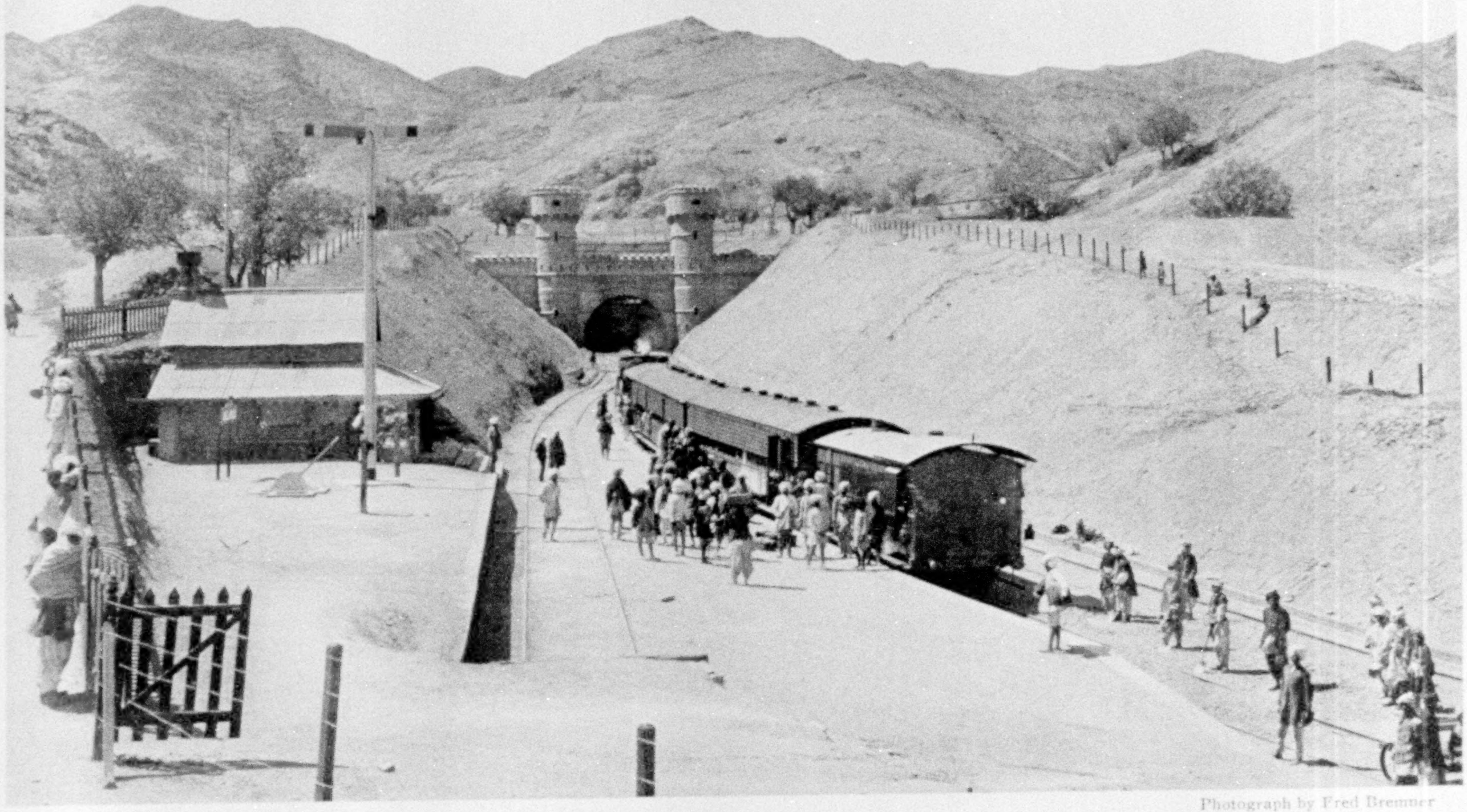
The meat and substance of carnival fun are not so much the elaborate plans of professionals, but the spontaneous outbursts of jollity from confetti-tossers, whose insidious spirit transforms even staid visitors into boisterous revelers (see text, page 475).

and rolls away with his wife to a Provençal fête at Vence or a moonlight ride back among the mountains where Saorge rises above a new railway line or Castellane dozes at the foot of towering cliffs.

RETROSPECTION BRINGS SURPRISE

Suddenly the question comes, "How did I ever have the audacity to pour confetti down that little wildcat's neck?" and as if by telepathy the mild-mannered woman, watching the changes in the moonlit scene, muses: "I wonder if that solemn old man ever did get my pink and green confetti out of that huge gray beard?"

But King Carnival, undergoing a seemingly mortal metamorphosis in the shed at Nice, has no fear of such disloyalty. Cynic that he is, he knows that when the bands blare forth again and the maskers dance, the average traveler and the cruising millionaires will be there, breaking with conventions, finding laughter hitherto hidden even from themselves, and clowning in so whole-hearted a way that it is amusing, even in retrospect.



Photograph by Fred Bremner

A GATEWAY THROUGH THE HILLS IN BALUCHISTAN

The Khojak Pass through the Khwaja Amran Mountains lies on the route from Kandahar to India and for centuries has been a highway for soldier and merchant alike. The Khojak railway tunnel penetrates the mountains for nearly 2½ miles. The top of the peak to the left was seriously considered as a location for the new solar radiation observatory.

# HUNTING AN OBSERVATORY *

## A Successful Search for a Dry Mountain on Which to Establish the National Geographic Society's Solar Radiation Station

By C. G. Abbot

Assistant Secretary, Smithsonian Institution

We lay out under the southern stars on a knoll in a Hottentot village all through the last night before we found it. There was not a cloud in the sky. No one recollected if it had rained for ten months. Just before dark we had half driven, half pushed our long-suffering American automobile through the dry, sandy bed of the Great Fish River. To-morrow we were to climb Mount Brukkaros and fix upon the exact spot for the construction of the observatory (see map, page 504).

There have been many famous big-game hunters in Africa and Asia, but not many of them went after observatories.

To be sure, there was Jai Singh II, the Indian monarch, who established his monstrous instruments in six of his capitals. Even now the streams of tourists that arise, one in Bombay, one in Calcutta, and flow across India to intermingle at Agra, all try to understand or joke about these acres of sundials and stranger contrivances that form standard sights in Delhi and Jaipur (see illustration, p. 512).

Again, there was Sir John Herschel, that worthy son of the great Sir William. It is almost a century since he undertook his epoch-making expedition to Cape Town to record for the first time the marvels of the southern heavens.

### A NIGHT OF STARRY WONDER

As we stretched out on the ground, after our supper, eaten in the campfire light, and a visit from the Hottentot village chieftain, there shone the Southern Cross and the Magellanic Clouds, just as they had for Sir John Herschel so long ago. Long ago, did we say? Not if measured in star time. The very rays we were seeing started from the Clouds of Magellan a hundred thousand years before the building of the great pyramids. Our remotest posterity will very likely have been extinct for millenniums before the rays which these stars are now emitting reach the earth.

It was a glorious sky. At one time 16 of the 21 brightest stars of the whole heavens were visible. So exceedingly clear was the atmosphere that the great stars went blazing down to the very horizon and were blotted out, one by one, with lightninglike suddenness by the hills 30 miles away.

Before such an inspiring sight sleep came but fitfully. When Venus and Jupiter rose together to announce the coming of the sun, hardly a single great constellation had arrived upon the scene whose rising I had not noted.

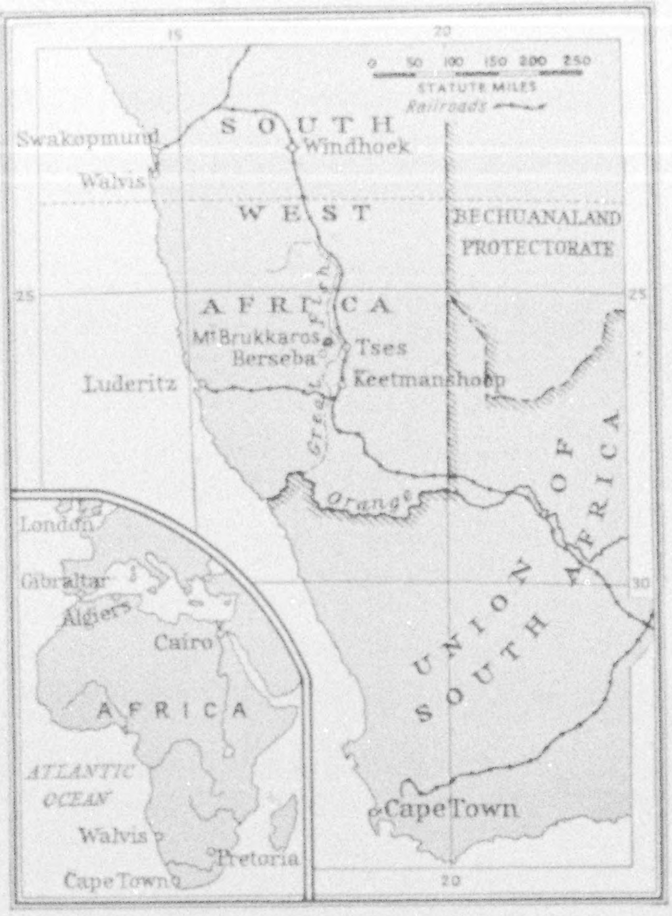
The black boys made breakfast before dawn, and we were all waiting in the twilight when the Hottentot guide ran up to take us to the mountain.

Such motoring! We came to a dry brook too deep to cross, and made ready to march. But our driver told us to keep seated, and presently wormed a circuit over a bed of stones as big as one's head, till he found a place where the banks were not more than four feet down. Two jolts and over we went!

When at last even he could go no farther, we followed our Hottentot in single file up the mountain. A venomous snake was killed, two springboks jumped away before our advance, and even a gemsbok was seen, but no leopards or koodoos, although we saw traces of them.

All about Mount Brukkaros, despite the fact that the annual rainfall averages less than four inches, multitudes of game

* Members of the National Geographic Society will recall Dr. Abbot's article in the National Geographic Magazine for January, 1926, in which he told why and how a new solar observatory is to be established under the auspices of The Society.




Drawn by C. E. Riddiford

MAP OF SOUTHWEST AFRICA IN THE VICINITY OF THE NEW OBSERVATORY

animals and wild ostriches pick their living among the stones that litter the ground.

### A GIGANTIC CUP WITH A RIM 1,000 FEET HIGH

It is a strange mountain. Lying about 20 miles to the west of the railroad and 250 miles south of Windhoek (Windhuk), capital of Southwest Africa, Mount Brukkaros sticks out as the only peak of consequence in a circle at least 50 miles in diameter. It is inaccessible on all sides except by the dry bed of a stream approaching in a gradual ascent from the south.

The mountain is 5,200 feet above sea level and quite 2,000 feet above the plateau. Only four or five miles in its greatest length and with no neighboring peaks for many miles, its isolation and abruptness are uncanny.

The whole massif is composed of chocolate-colored rock with very little soil, though sparsely tufted with bunches of dry bush and grass and here and there a queer cactus or dwarf tree. The cliffs are seamed into great cubes and the slopes are littered with fallen fragments. Seven hours of hard scrambling on the steep, rock-strewn slopes barely sufficed to locate a single firm ledge lying favorably for the site of the observatory cave.

The summit is like a cup with a flat bottom about half a mile in diameter and a steep rim 1,000 feet high. From a V-shaped break in the southeast side of the rim a precipice 60 feet high leaps to the bed of the dry stream, which leads down a three-mile corridor to the plateau.

Formerly there were barracks of mud bricks on the plateau bottom, built to shelter the German heliograph operators stationed there during the native wars, but these are now in ruins. We had hoped that they might prove useful for the observatory.

### A HOME FOR THE OBSERVER FOUND IN A CAVE

Since the observations require the use of the bolometer, that electrical thermometer sensitive to a millionth of a degree, one requires very constant temperature surroundings. These are most easily obtained by making a horizontal shaft or cave some 30 feet deep, right into the slope of the mountain.

As sun rays are to be reflected into the cave in a southerly direction, and as it is necessary that the reflector should be exposed to the rays within an hour of sunrise, these requirements call for a firm, sloping ledge facing north in a place with clear eastern exposure.

The whole forenoon passed fruitlessly in search on the eastern rim for a firm ledge lying suitably, but the field glass disclosed a fair prospect near the top of the western rim.

By 1 o'clock everybody was worn out with fatigue, heat, thirst, and hunger, and a retreat to the pools just below the precipice was proposed. Yet, as we had no provisions for a night on the mountain and as our connections for the steamer at Cape Town, 1,000 miles away, urgently called for a quick decision, I took the Hottentot and plodded up a gulch toward the western rim.

Half way up I spied a large cave in a firm limestone ledge. Crawling up and into it, I was reminded by the delicious coolness of the "shadow of a great rock in a weary land."

Photograph by Dr. C. G. Abbot

THE MOUTHPIECE OF THE CUP OF BRUKKAROS MOUNTAIN

The South African Solar Radiation Observatory, sponsored by the National Geographic Society and the Smithsonian Institution, is located just over the ridge to the left. The top of Brukkaros Mountain is cuplike and the only break in its rim is this V-shaped opening, through which the observers gain access to their station. In the right foreground may be seen a pool which collects drainage from the surrounding slopes and provides the only water supply for miles around (see text, page 504).

The exposure was not favorable for the observatory, but immediately it occurred to me that, with moderate enlargement and the building of a front wall and partitions, this would make a comfortable and inexpensive house for the observers. Warm in winter, the heating problem would be solved, and, with a porch awning for summer, it would be the only cool place, except the observatory, on the mountain. Do not all Egyptologists praise the cliff tombs as dwellings?

Somewhat cheered, I dragged on toward the top, halting under every bush and even lying down many times in the broiling sun.

Two tolerably firm ledges were in sight, both a little way from the top and both having satisfactory eastern exposures. I reached the lower one and marked it with a cairn of stones, which the Hottentot built under my direction. I was too far exhausted to push on to the higher one, but felt that I could leave it to the builder's discretion to prefer the higher ledge if found equally as firm in texture.

### HOTTENTOTS VOTE TO WELCOME THE OBSERVATORY

There was still a mile of the roughest, almost precipitous, descent before reaching the pools. The Hottentot now went ahead and faithfully explored every dangerous slide before he would let me venture. We kept on, footsore and halting frequently to rest, and reached our party at the pools at 4:15. After photographing the precipice and drinking between polliwogs from the pool, I ate some crackers and lay down in the sand for half an hour. Then we all set out and reached the automobile and supper at 6:30 o'clock.

Mount Brukkaros lies in a Hottentot

Photograph by Fred Bremner

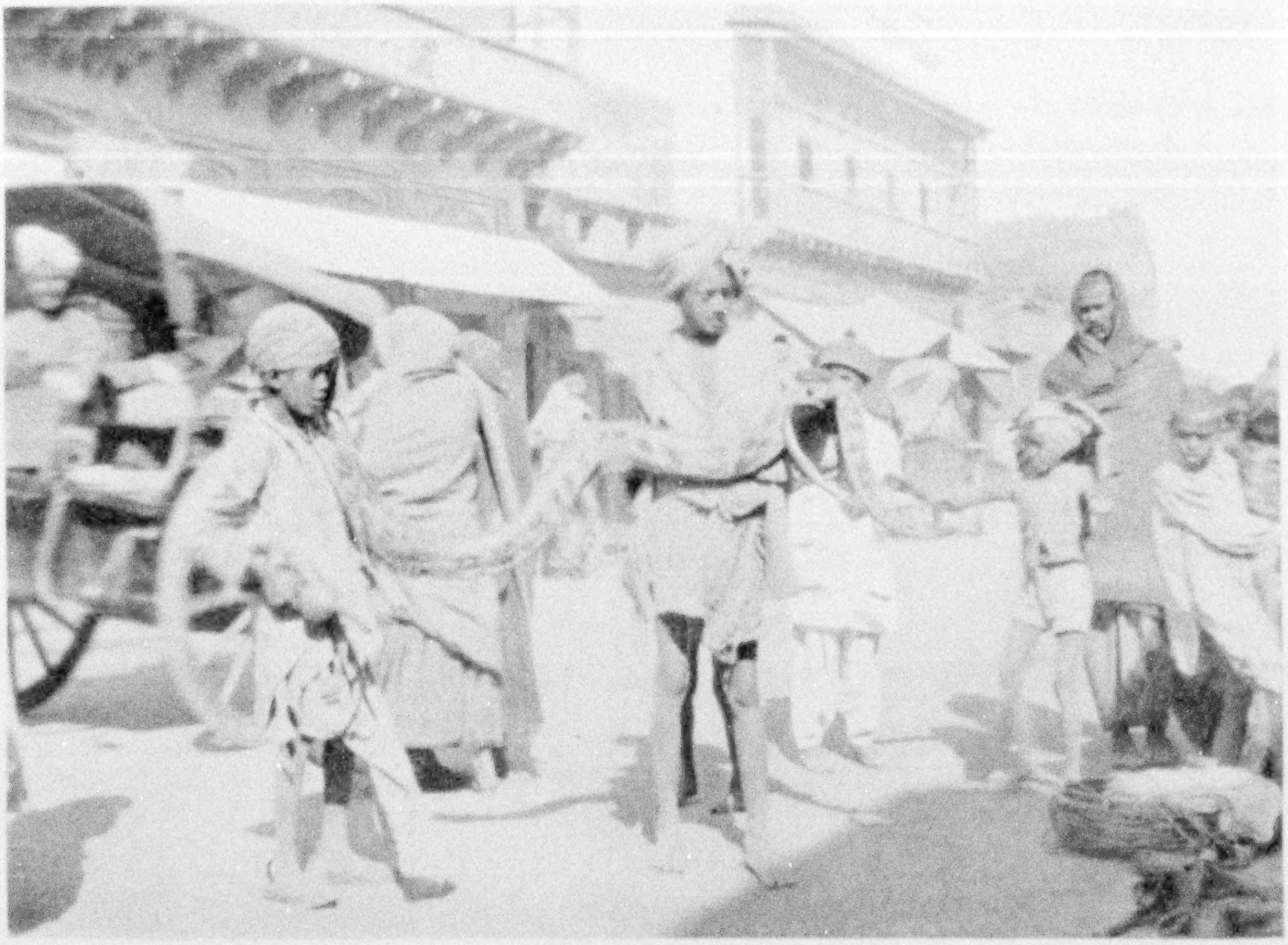
FARM LIFE IN BALUCHISTAN

The methods of cultivation used in this part of the world are primitive, but since the region came under the protection of the British Empire, the cultivator is reasonably sure of harvesting his crop instead of seeing it burned by marauders. The beasts yoked to the plow are Brahman cattle, a breed commonly used throughout India (see the NATIONAL GEOGRAPHIC MAGAZINE for December, 1925).

Photograph by Fred Bremner

STILL FARMING MUCH AS THEY DID THIRTY CENTURIES AGO

The threshing implements of these native Baluchi farmers are similar to those described in the Old Testament. Wheat, jowar (a sort of sorghum), and maize are the chief crops.



Photograph by Dr. C. G. Abbot

SNAKE CHARMERS OF AGRA

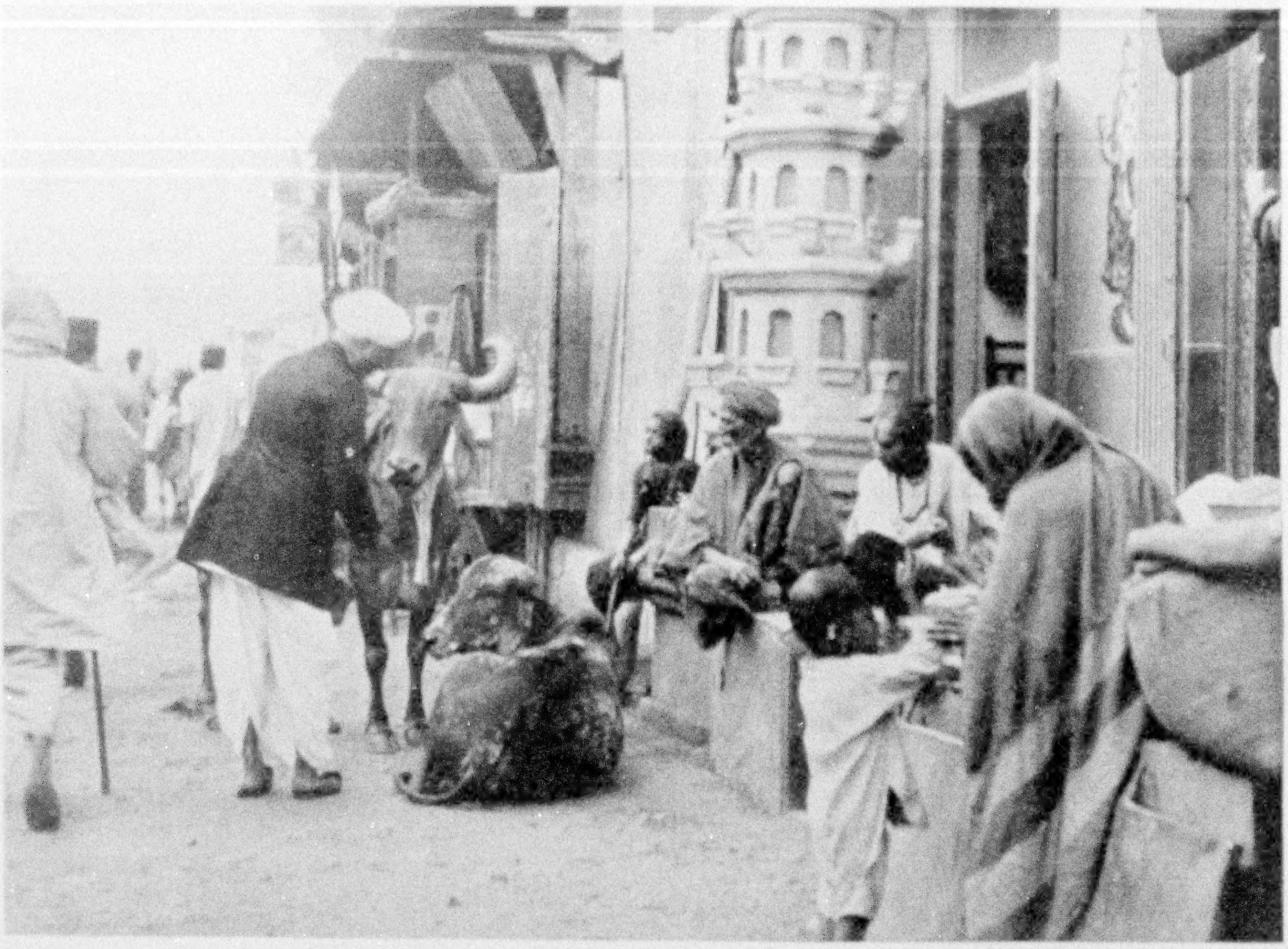
reservation, and a vote of the tribe was necessary to permit us to locate there. This was easily carried. The Government of Southwest Africa (administered by the Union of South Africa under a mandate) is cordial to the project. It assisted with maps and meteorological advice in the selection of the site, directed Mr. A. Dryden, Public Works Inspector, to arrange and accompany the expedition to the mountain, and agreed to allow Mr. Dryden to construct at cost the necessary caves and accessories. Free importation of the observatory outfit is also guaranteed.

I was 12 days in the vicinity during March, which, equally with February, is the rainiest time of the year. On 11 days we had fine observing sky conditions each forenoon, though a bit of rain fell sometimes toward nightfall. That is surely a very favorable record. I was the more pleased because there were absolutely no cirrus clouds—those wisps that slightly veil the sun and are fatal to our observing. There was very little wind—almost none in the forenoons—though I was told that in winter it sometimes blows hard.

Judging by the rainfall records, my own observations, and the impressions of Mr. Dryden and others, we may expect fine conditions almost daily during 10 months, and it is anticipated that in the remaining two months three-fourths of the days will be good. If so, the station selected will be even better than our excellent location in Chile. To be sure, it is not so high, yet the dryness and clearness of the air are extraordinary.

### HOW THE OBSERVERS WILL AMUSE THEMSELVES

Some readers, I am sure, will have begun to pity the observers, exiled to a crater in the wilderness seven miles even from Hottentot neighbors (at Berseba) and 60 miles from a fair-sized town (Keetmanshoop). We hope their loneliness will be mitigated by the facts that they are both fine fellows, inured to camp life; that they will have interesting work; games, music, books, and radio to beguile leisure hours; and that the leopards and other wild game, so plentiful in the vicinity, will divert them. Perhaps they will raise a garden on the level bottom



Photograph by Dr. C. G. Abbot

A STREET SCENE IN INDIA'S MELTING POT

Probably no city in the world can show a greater diversity of types than Bombay, where most of the native Indian races and many foreign peoples are to be found.

of the cup, if they can arrange for enough water.

The water supply is not so great a difficulty as it seems. By making a reservoir in the gulch in front of the dwelling cave, the drainage of several square miles may be impounded. Even the few inches of yearly rainfall thus conserved will be abundantly sufficient.

For provisions and mail the observers must arrange with the Hottentots. With their own automobile they will make the 60-mile trip to Keetmanshoop frequently, where nearly everything needed can be obtained.

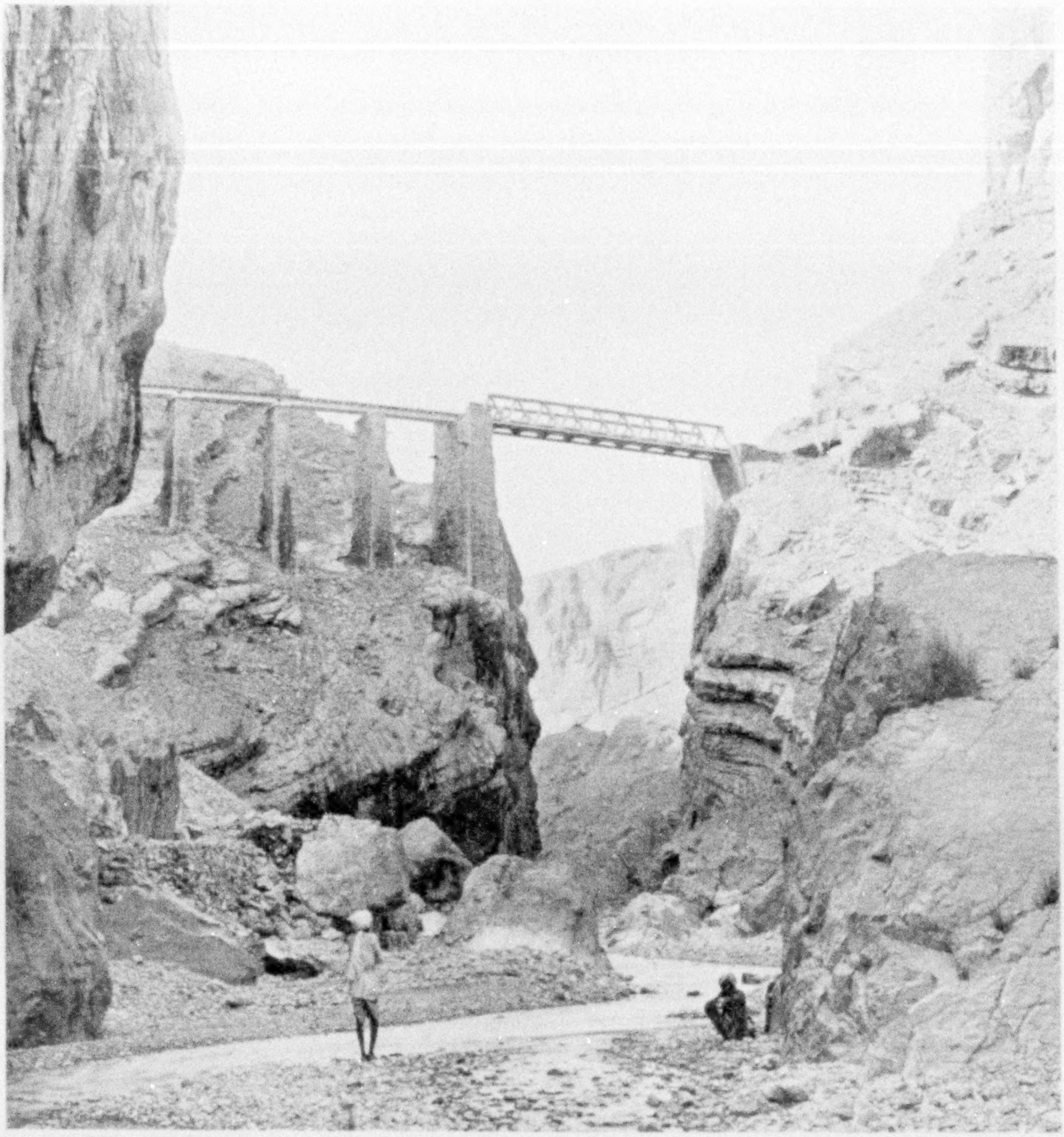
Construction work in Africa has proceeded so satisfactorily that we hope to receive reports of observations this month (October).

Southwest Africa lay at the end of a very long and interesting journey in search of the observatory site. Leaving Washington October 30, 1925, Mrs. Abbot and I spent 10 days in England consulting meteorological authorities, explaining the work in addresses before sympathetic audiences of the Royal Meteorological and Astronomical societies, renewing old acquaintances, and making new friends.

### SEARCHING IN ALGERIA FOR A SITE

After a brief stay in France, we crossed to Algiers, where we arrived in a downpour on the day before our American Thanksgiving. Leaving Mrs. Abbot there, I pushed on to Ain Sefra, an important military post 600 miles to the southwest. The general in command was away, but was cordially and helpfully seconded by his officers, who supplied information and made all arrangements for my ascending the Jebel Mekter, a peak nearly 7,000 feet high, near the town.

After crossing a mile of sand dunes, a well graded but rocky trail led up to a disused heliographic station near the top. This strongly built stone structure could be altered very inexpensively to serve as both observatory and dwelling.



Photograph by Fred Bremner

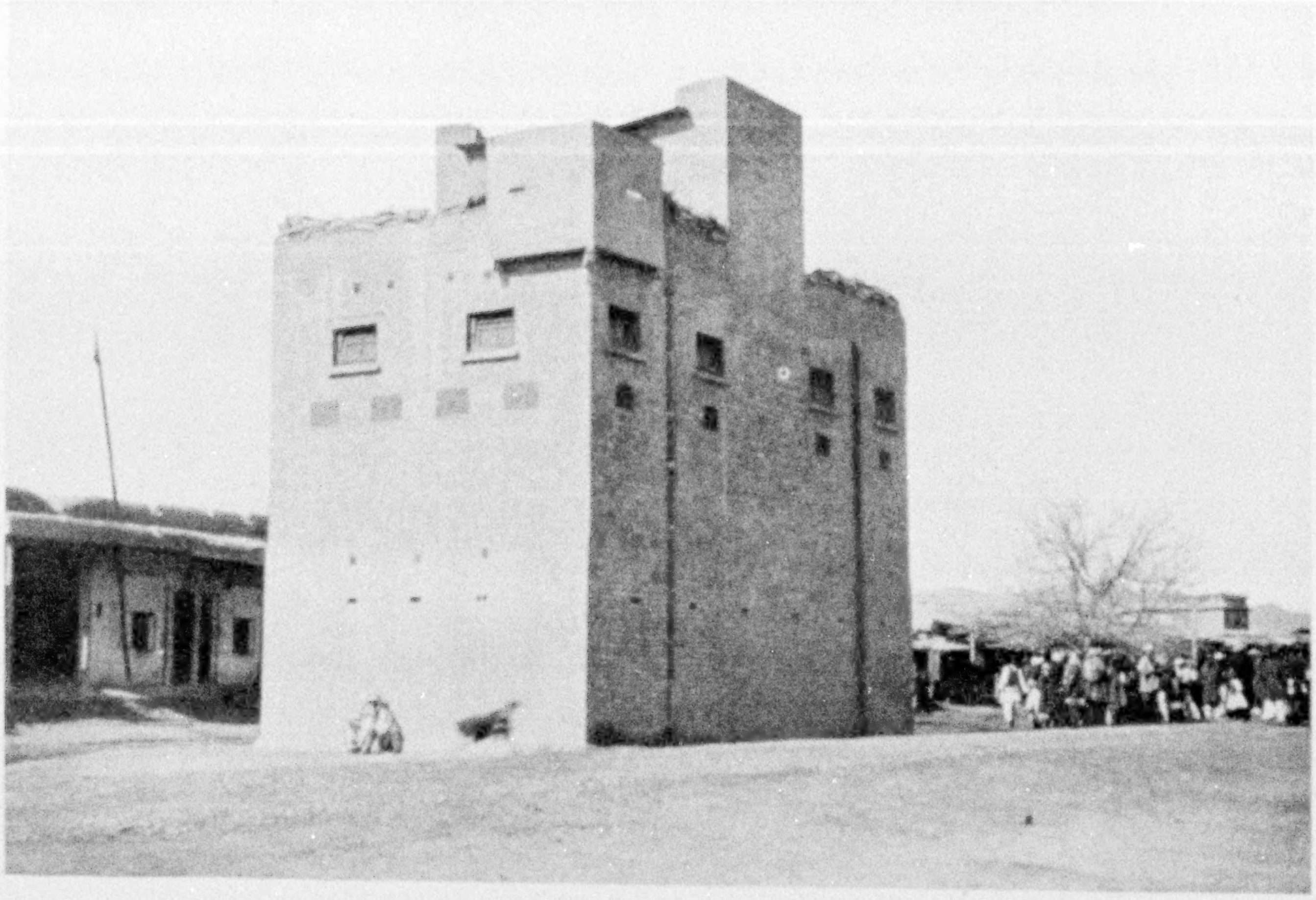
THE CHAPPAR RIFT BRIDGE ON THE NORTHWESTERN RAILWAY OF INDIA

Many astounding engineering feats marked the construction of this railway and not the least of these was this bridge. The road is primarily a military line, over 20 per cent of its more than 5,000 miles of line being regarded as purely strategic in value. About 3,000 tons of coal are consumed each day on the Northwestern, all of which has to be carried an average distance of 1,300 miles.

Captain Navarre was of the opinion that one might depend on not less than 10 excellent days per month in January, February, and March, and 25 in the other months of the year in this locality. This estimate is confirmed by the daily meteorological records of several years for Ain Sefra, which were shown to me.

Unfortunately, the mountain top was in a cloud while I was upon it, and it was impossible to photograph the station. The yearly rainfall at Ain Sefra averages eight inches, which is twice as great as that of the Brukkaros region. Although it would have been easy to establish a station on Jebel Mekter, I feared that this locality might prove disappointing as to sky conditions.

Recrossing the Mediterranean, we took ship for Egypt. I had little hope that a favorable site could be found there, notwithstanding the far-famed cloudlessness



Photograph by Dr. C. G. Abbot

A SILENT SENTINEL OF SECURITY

This watchtower, near the Khojak Pass, in Baluchistan, serves to protect a village from the raids of marauders. It is located in the center of the main street and has loopholes on all sides, through which the garrison of Indian troops can make things very uncomfortable for unwelcome invaders (see text, page 517).

of the country. The Egyptian desert lacks easily accessible peaks, necessary to getting above the haze and sandstorms. The scientific men in Cairo confirmed these impressions, though suggesting the possible occupation of Mount Sinai.

Dr. John Ball, Director of Desert Surveys, told of a high peak on the border of the Sudan where no rain ever falls, but he added that he journeyed 200 miles over sand by caterpillar traction from the nearest water to reach it.

I was greatly impressed in ascending the Valley of the Kings' Tombs, near Thebes, to see how rapidly the dense haze of the Nile Valley gave place to the deep blue of a clear sky, as the elevation increased. I wished that Nature had provided a higher peak there. Imagine our observers located within visiting distance of Luxor!

Not less romantic, perhaps, would be the occupation of Mount Sinai, where Moses received the Law and near the ancient monastery. The difficulty of access, bleakness of winter, and several other drawbacks vetoed this suggestion. One would go far to find a more inhospitably appearing region than the Sinai Peninsula.

So we journeyed to Bombay, en route for British Baluchistan.

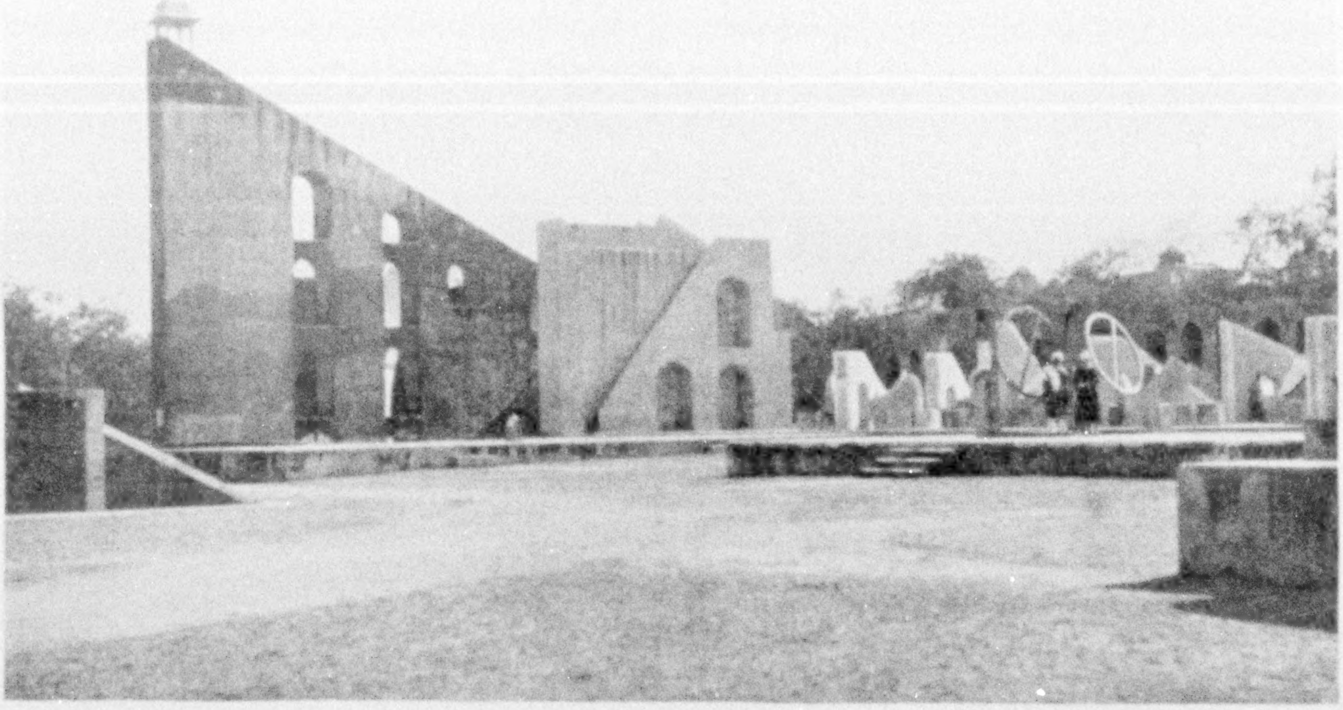
### QUETTA, ON THE FRINGE OF INDIA

Quetta lies far off the path of the tourist. One reaches it after a long rail journey through a very dusty desert. Our visit, fortunately, was in winter, for the railway traverses one of the hottest regions in the world.

As everywhere in India, the traveler must carry all his bedding for night journeys. Even the hotels in large towns frequently depend on the guest to furnish part or all of his bedding.

We did not find the region of Quetta colder or more bleak than Washington, but the lack of central heating facilities made hotel life in January rather miserable.

Nothing was left undone to aid and entertain us by the official families at



Photograph by Dr. C. G. Abbot

THE RUINS OF AN INDIAN OBSERVATORY IN JAIPUR

This was built by the great Maharaja Jai Singh II, who in 1728 founded the city of Jaipur. He was one of the eminent mathematicians and astronomers of his day and monuments to his interest in these sciences are to be found in many places (see text, page 503).

Quetta. Our thanks are due especially to the Political Agent, Colonel Trench, and Mrs. Trench, and to Colonel Barker of the Royal Engineers.

The British do not own Quetta, though they conquered a small region north of it. They hold it under a perpetual lease from the Khan of Kalat. Formerly the ferocious tribes of these barren mountains and beyond used to depend largely for their existence upon raids into India, and for a time they lived sumptuously on the spoils of Delhi. Horde after horde of these savage warriors established temporary sovereignties over the rich cities of the central plains, only to be overwhelmed in turn when they became soft under the influence of luxury.

It is to prevent this sort of thing that the British occupy Baluchistan and the North West Frontier Province to the northeast. They do not depend altogether on armed forces, but attach great importance to their political agents. These men, who reach responsibility only after thorough schooling in this extraordinary service, further peace by ameliorating the conditions of living. They promote agriculture, give security to the small towns, erect blockhouses for protection, and compose feuds through exercise of tact or power, as circumstances dictate.

In these agents are combined the functions of executive, judge, and despot. But they do not attempt to impose western notions of law and justice on the wild Mohammedans under their jurisdiction.

Much of the trouble among the natives in Baluchistan concerns wives. Girls are not of as much consequence as boys, and their parents give the warm coats and best food to the sons; so that the death rate among daughters is much higher, with the result that there are not enough wives to go around, especially as some of the richer men avail themselves of the Prophet's permission and buy more than one helpmate.

Wives, like camels, are bought at high prices, and, like camels, are often stolen. The girl's preference is not consulted, and as her betrothal in many cases has taken place before her birth, she not infrequently prefers another to her husband. Woe to her, however, if her unfaithfulness is discovered or suspected, for it then becomes the duty of her husband, her son, her father, or her brother to kill her without mercy, and to kill her lover, too, if he can be found.

© Elmendorf from Galloway

A PEACOCK PEDDLER OF BOMBAY

He carries his stock where it will advertise itself. The birds balance each other's weight, and his voluminous turban protects his head in such a way that he suffers no inconvenience from transporting them. The peacocks are hooded to prevent their flying away.

Photograph by Alan Yates

GUARDING THE UNION OF SOUTH AFRICA

The "Sentinel," a British field gun which saw service in the World War, now stands on one of the upper terraces of the Union Government Buildings and overlooks the city of Pretoria, the administrative capital of the Union of South Africa. The legislative capital is at Cape Town, a thousand miles removed.

Adam Khan was 16 years old. One night he was wakened and went to the tent door, but found no one. It happened a second time, but even the camels were quiet. So he lay and listened, and the third time he saw a man whispering to his mother, Amina. As Adam roused his father, Dost Mohammed, the lover, Nasho, escaped.

### TRIPLE SLAYER RECEIVES TWO WIVES AS A REWARD

Dost Mohammed loved his wife and shrank from killing her. Nay, he even tried to protect her against the vengeance of her son. So it happened that when Adam tried to shoot his mother it was his father who first fell. Afterward she, too, was slain. Then, while it was yet dark, Adam hid in a nullah (gully) near the door of her lover, with his gun pointed and cocked.

The lover, however, had been too crafty to return home, and when Adam Khan shot the first man who came out of the hut, in the gray twilight, it was the lover's father, Karim, who fell groaning. As he was desperately wounded, the old man of his own accord raised his head that another merciful bullet might end his suffering.

When day was advanced and the English Political Agent had finished his breakfast, Adam Khan sought him and demanded justice.

Perhaps you think justice would begin by hanging Adam. Far from it! That would have started a feud which would have lasted, perhaps, forever, and many yet unborn would kill each other because the balance of justice had, in this instance, kicked the beam. The English Political Agent, wise from long experience, summoned the village elders and laid the case before them.

Well versed in the customs of their forefathers from time immemorial, the elders easily arrived at their decision. Had the case been simple, both the unfaithful mother and her lover would have been slain and the case ended. In lieu of the lover, however, the latter's father had fallen and, so far, all was well.

But the boy Adam, in accomplishing the necessary killing of his mother, had suffered the loss of his father also. For this he deserved compensation. The blood recompense for plain murder is 3,000 rupees; but, as the case was complicated by the fact that the man's son and heir, not his enemy, had done, not a murder, but a manslaughter, the heir ought not to receive as much. Hence the elders decreed that the lover should pay Adam Khan 500 rupees and besides provide him with two girls as wives.

The English agent confirmed this Solomonlike decision; the lover paid the rupees, gave one niece to Adam, and promised a daughter, yet unborn, when she should be of marriageable age. All was acceptable to both parties and they have lived in love and harmony, after this happy union of their families, ever since.

### "A NOSE FOR A NOSE"

Not always, however, does the English Political Agent comply exactly with the judgment of the elders. In the case of Miriam, for instance, the Political Agent found her with her nose slashed off and bound up with a dirty rag. He asked her who had done this. "My husband," said she.

So the Agent sent for the husband, Halim, and asked why he had mutilated his loving wife.

"Oh, because I thought I saw her speaking to Sharbat Khan," said he.

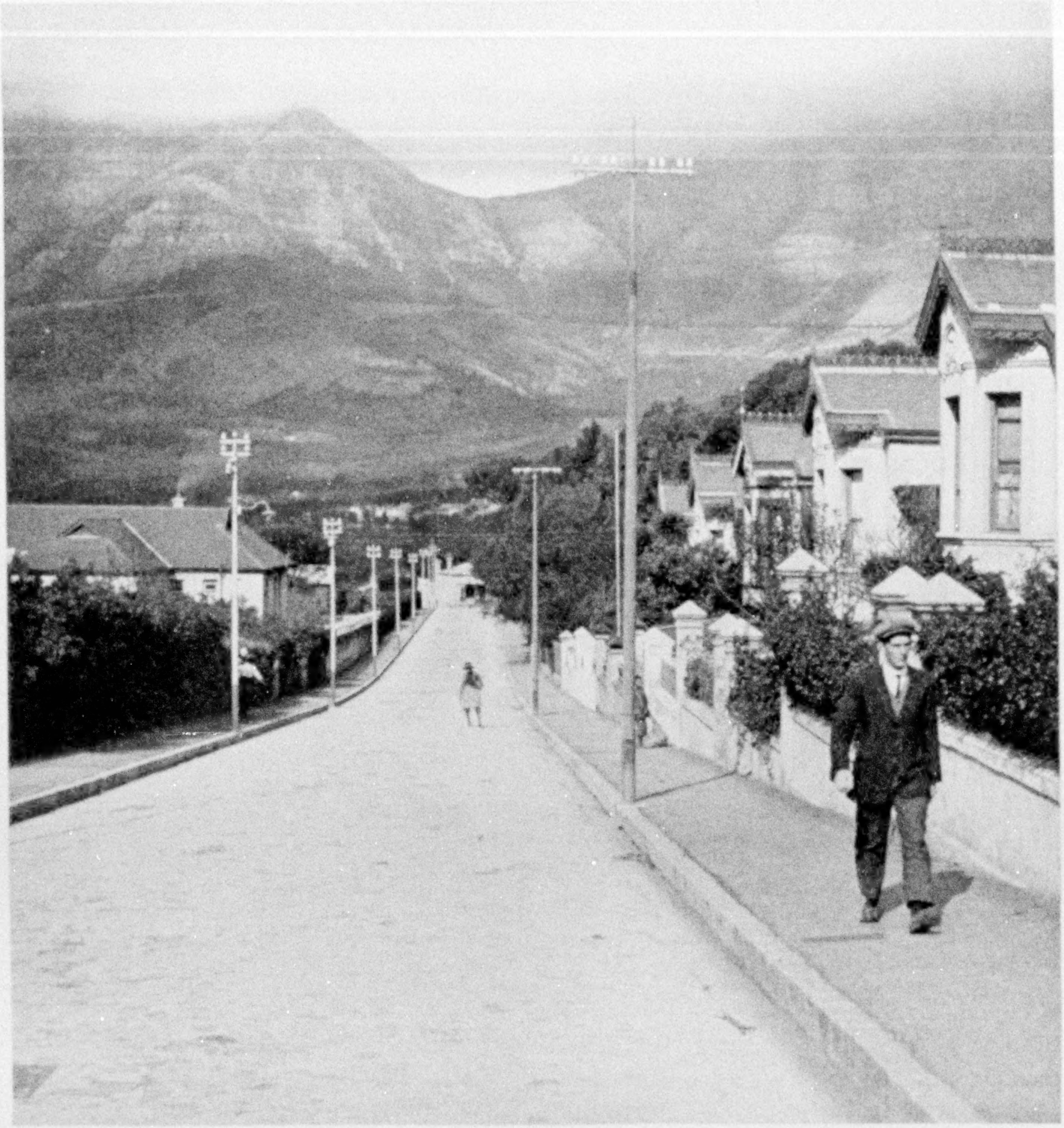
"But did she do so?" inquired the Agent.

"Who knows? Perhaps not," said Halim.

"Well, but I really cannot let you cut off your wife's nose for nothing at all," said the Political Agent. "You must go to jail for one year."

The elders came to the Agent and remonstrated against such severity. "Perhaps it would not have been amiss," said they, "to put Halim in jail for three months. Yet a man's wife is his own. She is bought with a great price. Why should he not cut off her nose if he pleases? It is, after all, his own loss. Surely, Sahib, you will let Halim out of jail." "To-morrow," said the Agent, "I will give my decision."

The next day he pronounced this judgment: "I will release Halim on either of two conditions. Either he must restore his wife's nose safe and sound or he must cut off his own nose in exactly the same fashion as hers." The elders were



© Publishers' Photo Service

HASTINGS STREET, LOOKING TOWARD TABLE MOUNTAIN, CAPE TOWN, SOUTH AFRICA

The massive bulk of Table Mountain (2 miles long and 3,500 feet high) makes a magnificent background for the city of Cape Town. Founded in 1652 by Dutch settlers, it retains few traces of its early days, being now essentially a modern English city.

amused greatly by this alternative. They withdrew their protest, Halim served his term in jail, and was released without retaining rancor against so just a sentence.

BRIDE'S DOWRY BUYS CLUB BILLIARD TABLE

In another instance the Mohammedan Mahmud, instead of contenting himself with the girl chosen by his mother and sisters to be his wife and first to be seen by him after the marriage ceremony, found for himself a pretty Hindu girl and persuaded her to be his bride. But he could not make up his mind to marry her unless she should first profess his religion.

So Mahmud consulted the Mullah of his village as to how she might become Mussulmani. The Mullah made no difficulty of it. All that was necessary, so he said, was that the lovely Hindu girl should say before him: "There is no God but God, and Mohammed is the prophet of God."

"But stay," added the priest. "You

must pay for your bride, of course. As it would be sinful to give a great sum for her to the worthless Hindu, her father, you may give it to me, my son."

The young man easily perceived the reasonableness of the first part of the priest's proposal, but he could by no means see why his wife's dowry should be given to the priest. In his perplexity he consulted the Chiefs of the Wazirs.

"The priest," said they, "is quite right in telling you not to give the dowry to the Hindus; but it should come to us, not to him. We are the authorities."

But before this was done the elders of the Mahsuds heard of the transaction. While approving, like the Wazirs, the withholding of the money from the Hindus, they let it be known that, being the superiors of the Wazirs, the elders of the Mahsuds were the proper recipients in this instance.

All parties appealed the question to the British Political Agent. After mature consideration he readily foresaw that either of the dispositions proposed would most probably lead to a feud. Hence, in the interest of peace and as representing the real topnotch superior power of the whole region, he very reasonably decided that the dowry should be paid over to him.

As there was no appeal possible, this was readily complied with, and the Political Agent, not knowing a better disposition, made it over to the club as a contribution for the new billiard table!

Halim Khan had several sons and lacked means to buy wives for all of them. A very ingenious scheme occurred to him. He had a cousin named Lālo so well-to-do that he possessed two uncommonly attractive young wives, but as yet he had no sons. Moreover, a raid some time previously had carried off the cousin's nearest relatives; so that, in short, Halim Khan was the heir.

In these circumstances Halim persuaded his oldest son, Sarwar Khan, to ambush and shoot the cousin. Two consequences would in ordinary cases have followed:

First, the possessions of the cousin, his wives included, would go to the next of kin, who, like Boaz in the Biblical story of Ruth, would be bound to raise up seed to the inheritance of the deceased.

In the second place, the murderer or his kin must pay to the heir 3,000 rupees for blood money or be liable to be killed by the avenger of blood.

We see, now, the beauty of Halim Khan's scheme. Being the next of kin, he could pass on the two wives to his sons to continue the line of the cousin in marriage, and as his own son was the murderer, he himself, the heir and avenger of blood, could, if he pleased, remit the money penalty. In short, the whole matter was a family affair.

This was all satisfactory to the native mind, as represented by the elders of the village, but it reached the ears of the British Political Agent. Though charmed by the ingenuity of Halim's device, he felt that as a precedent it ought not to succeed. So he put Sarwar Khan, the elder son and murderer, in jail for a year, deprived Halim of his cousin's inheritance, and gave the two wives in marriage to some other relatives who had not been concerned in the assassination.

### BALUCHISTAN PRESENTED MANY PROBLEMS

After motoring about Baluchistan in search of an observatory location and after a conference with the Agent to the Governor General of Baluchistan, I settled upon Khojak Peak, 70 miles northwest of Quetta and only 10 miles from the Afghan border. This peak is 7,500 feet high and but half a mile from the Khojak Pass. The steep trail over which Lord Roberts' guns were dragged during the Afghan war is still visible. The railway tunnel now passes under it.

In going about in this neighborhood it is the regulation that a loaded rifle and two men able to use it, beside the chauffeur, shall be in the automobile. If ladies are to be of the party, two days' notice to the garrisons near the pass are required. Accordingly, the political authorities, while regarding the Khojak as one of the safest regions in their jurisdiction, imposed the conditions that our observers must live at the garrison post of Shelabagh three miles east; that a couple of enlisted natives (called levies) must be continually at the observatory on the peak, and that a third must always ride in the automobile to and fro.

From the nature of life in India, several other servants would be necessary to

Photograph by Dr. C. G. Abbot

A JINRIKISHA RUNNER OF DURBAN

the establishment, for it must be understood that no white man lifts his hand in any form of physical exertion other than sports.

The innumerable castes which exist among both Hindu and Mohammedan natives of India preclude the possibility of keeping house with one servant; for a cook may not do chamber work and a valet may not be a sweeper without loss of caste. It is only Christian converts from the lower castes who may do various kinds of labor, and they are few and not always satisfactory.

I mention these things to emphasize some considerations other than meteorology which had to be taken into account in considering the Khojak Peak.

It lies very far away from Washington and the occupation must on that account alone be costly. No assurance of free or compensated customs entry could be secured at that time. The cost of construction was rather high. Inconvenience must result from the observers' quarters being separated so far from the observatory. There were, for instance, two feet of snow in the pass while I was there, and the road was impassable. The pay of six or seven servants would be considerable. Daily telegrams to Washington, after the observations should become regular, would be costly.

On all of these and other accounts, I could not but hesitate to choose the Khojak, although the prospects for good sky conditions there were superb. Neither in California nor in Chile have I ever seen quite so pure a sky as I saw there.

Returning to Bombay, we sailed the Indian Ocean, via the Seychelles, Mombasa, and the East African ports, to Durban. Like others, we rode in glee behind the wonderful ricksha men and saw the sights of that charming city. Thence we journeyed to Johannesburg and received great kindness and aid from Dr. Innes, of Union Observatory; Dr. Alden, of Yale Observatory; the United States Consul, and others.

We happened to cross the path of the "billion-dollar tourists," as a certain company of Americans was dubbed. Thus we had the opportunity to see a real African war dance before going on to Brukkaros, where our quest ended.

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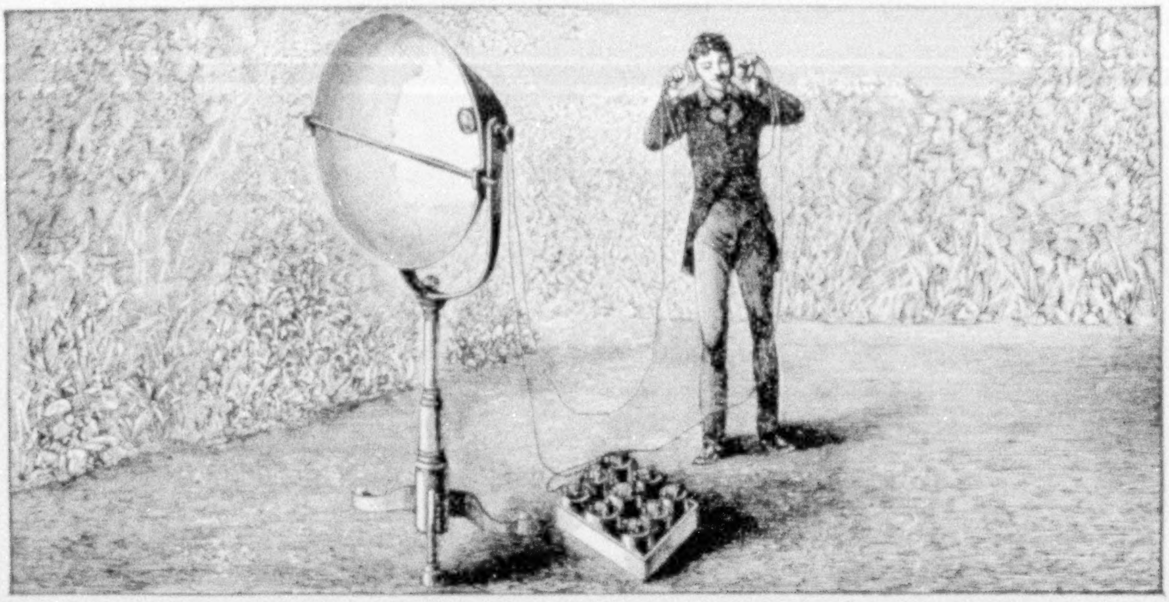

# Building on the Telephone Principle

FIFTY years ago Alexander Graham Bell discovered the principle of the telephone. His first telephone employed wire as the connecting path over which words passed. Four years later he used a beam of light instead of wire to carry speech between telephone instruments.

Today, both wire and wireless telephony are employed on every hand in the service of the nation. Wire telephony, with its thousands of central offices, its complex switchboards and millions of miles of wire, envelops the country, carrying for the American people 70,000,000 conversations every day. Wireless telephony is broadcasting entertainment and carrying important information to the remotest regions.

But new applications of the telephone principle are still being found. In the loud speaker, in the deaf set, the electrical stethoscope, the improved phonograph, the telephone principle has been adapted by the Bell Telephone Laboratories to the uses of the physician, the public speaker and the musician. The scientific research and engineering skill, which enable America to lead the world in telephone service, are also bringing forth from the telephone principle other devices of great usefulness.

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*By* J. E. Fields

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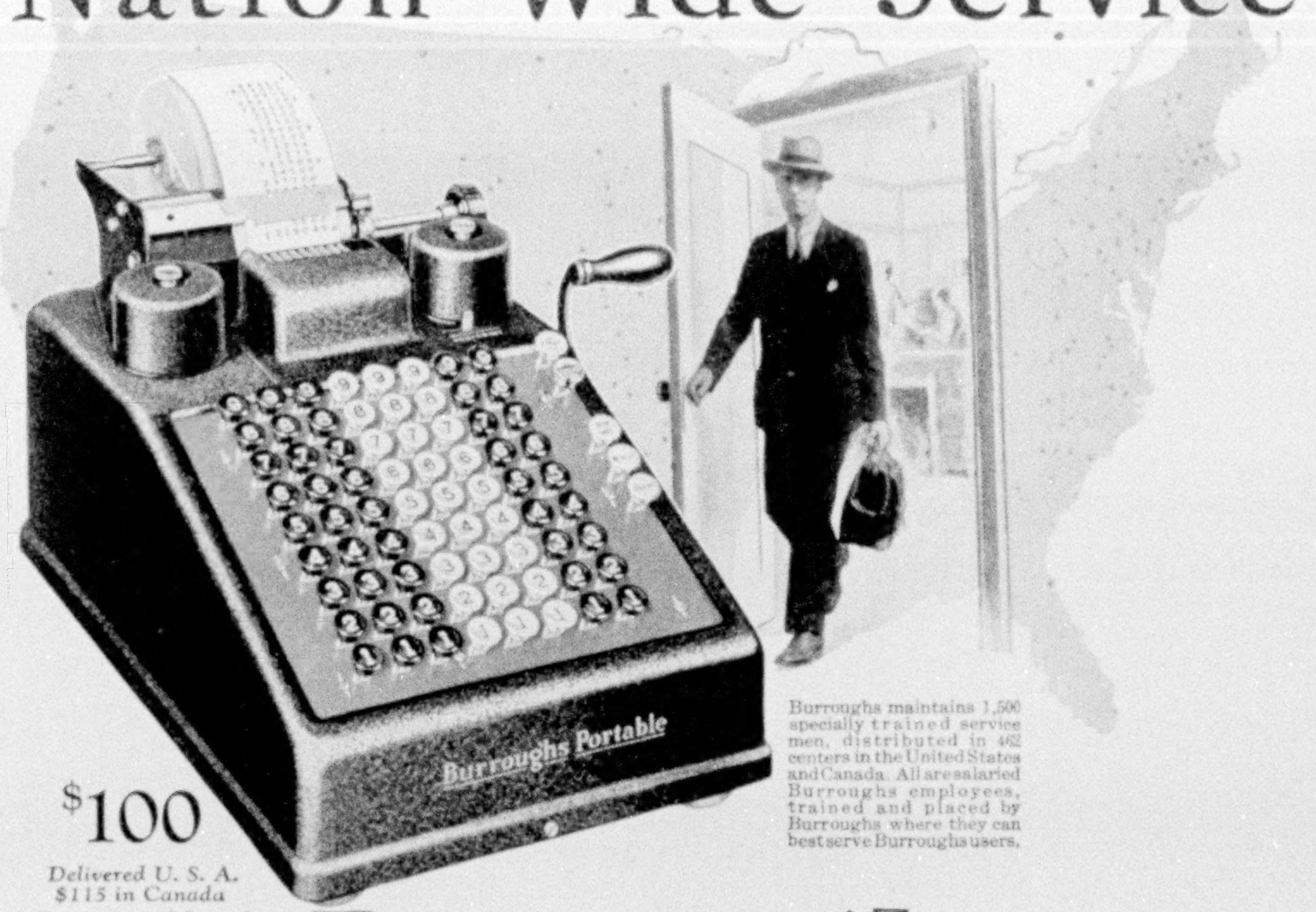


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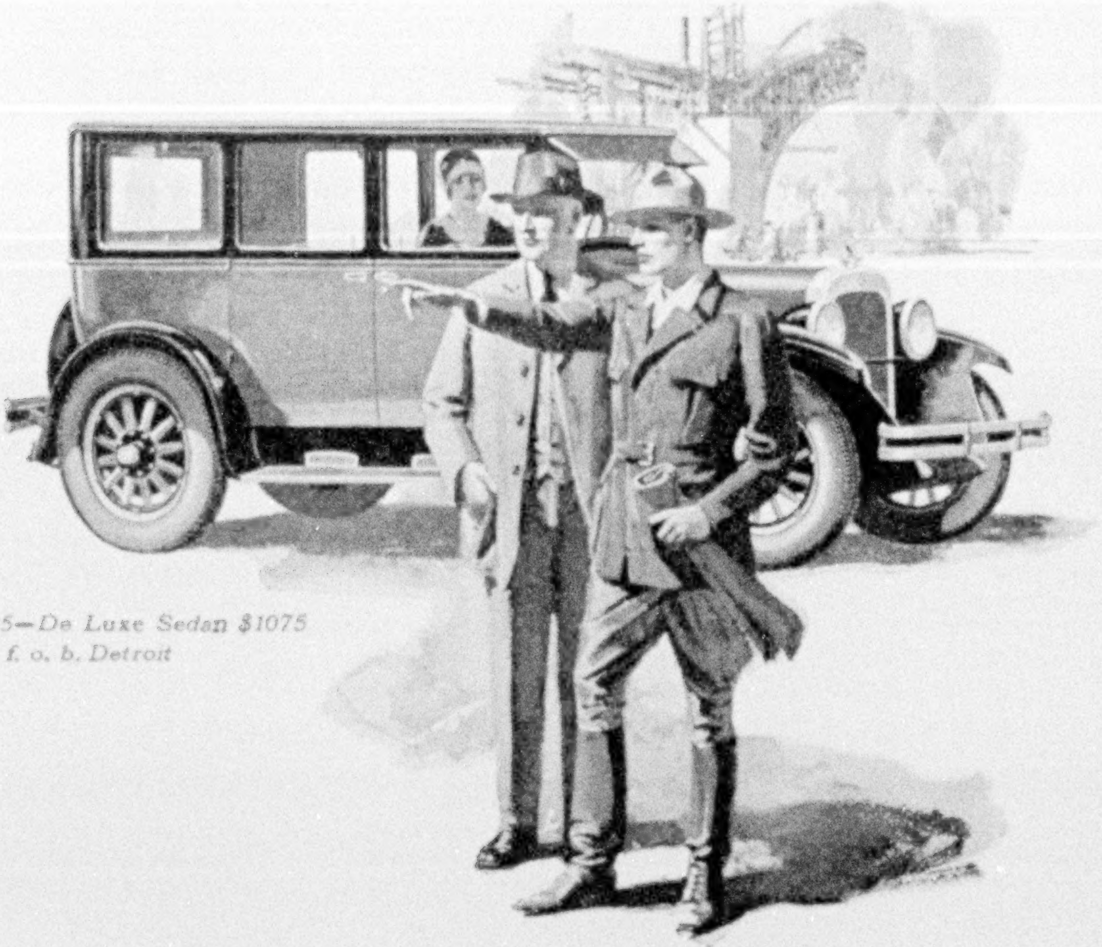
*"What—you're going to start out on an all-day drive in that lovely white dress? Suppose you have a blowout?"*

*"No danger, my dear. Don't you see the Kelly-Springfield tires?"*



*Sedan $895—De Luxe Sedan $1075*
*f. o. b. Detroit*

# BETTER THAN EVER

Following their traditional policy of constant improvement with no yearly models, Dodge Brothers, during the past eight months, have vastly bettered their motor cars in many vital respects.

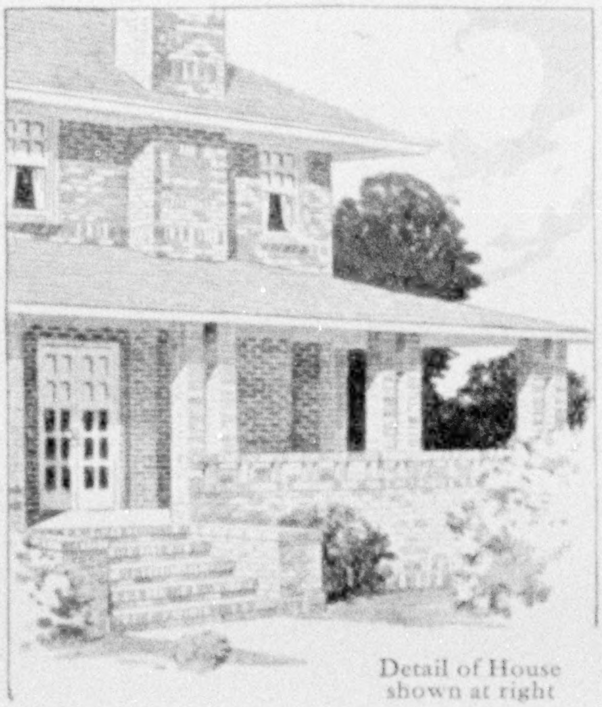
Indeed, there has never been an equal period in Dodge Brothers history when so many refinements of a popular and fundamental nature have been made.

The public is registering its appreciation of this progressive industrial service by purchasing every motor car Dodge Brothers can build—in spite of the fact that Dodge Brothers production, during these months, has broken all previous records by an impressive margin.

DODGE BROTHERS, INC. DETROIT
DODGE BROTHERS (CANADA) LIMITED
TORONTO ONTARIO

# DODGE BROTHERS
## MOTOR CARS

# *In spite of the temptation to "Save" by using inferior materials build of* FACE BRICK



Detail of House shown at right

THERE is something very taking in the idea of building as much house for as little money as possible.

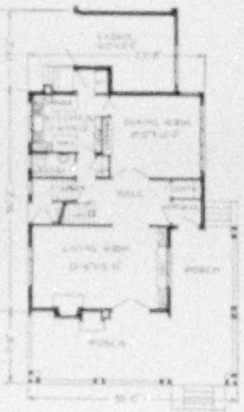
But don't yield to it. Or if you do—know *beforehand* how much repairs and depreciation you are letting yourself in for. There is such a thing as the extravagance of cheapness—avoid it.

Build *permanently.* If you feel that you cannot afford to build of Face Brick *now*—much better *rent* for a year or two longer, rather than put your savings and future income into any home less lasting than a Face Brick house.

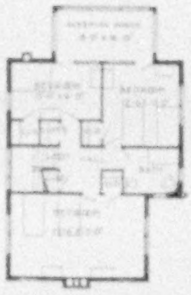
But begin to *plan now.* The widely read "Story of Brick," beautifully illustrated, will give you valuable information. Sent free.

*Six-Room House No. 619*

*Designed for the Service Department of American Face Brick Association. Note floor plans below.*



FIRST FLOOR



SECOND FLOOR

*Details and description of this house found in the six-room booklet of "Face Brick Bungalow and Small House Plans."*

## THESE BOOKLETS MAY INTEREST YOU

"Face Brick Bungalow and Small House Plans" embrace 128 designs of Face Brick bungalows and small houses. These houses are unusual and distinctive in design, economical to build, and convenient in floor plan. Issued in four booklets showing 3 to 4-room houses, 5-room houses, 6-room houses, and 7 to 8-room houses. The entire set for one dollar; and any one of the books, 25 cents. We can supply complete working drawings at nominal prices.

"The Home of Beauty" contains 50 designs of two-story six-room Face Brick houses, representing a wide variety of architectural styles and interior arrangements, selected from 350 designs submitted in a nation-wide Architectural Competition. Sent for 50 cents. Complete working drawings for these houses at nominal cost.

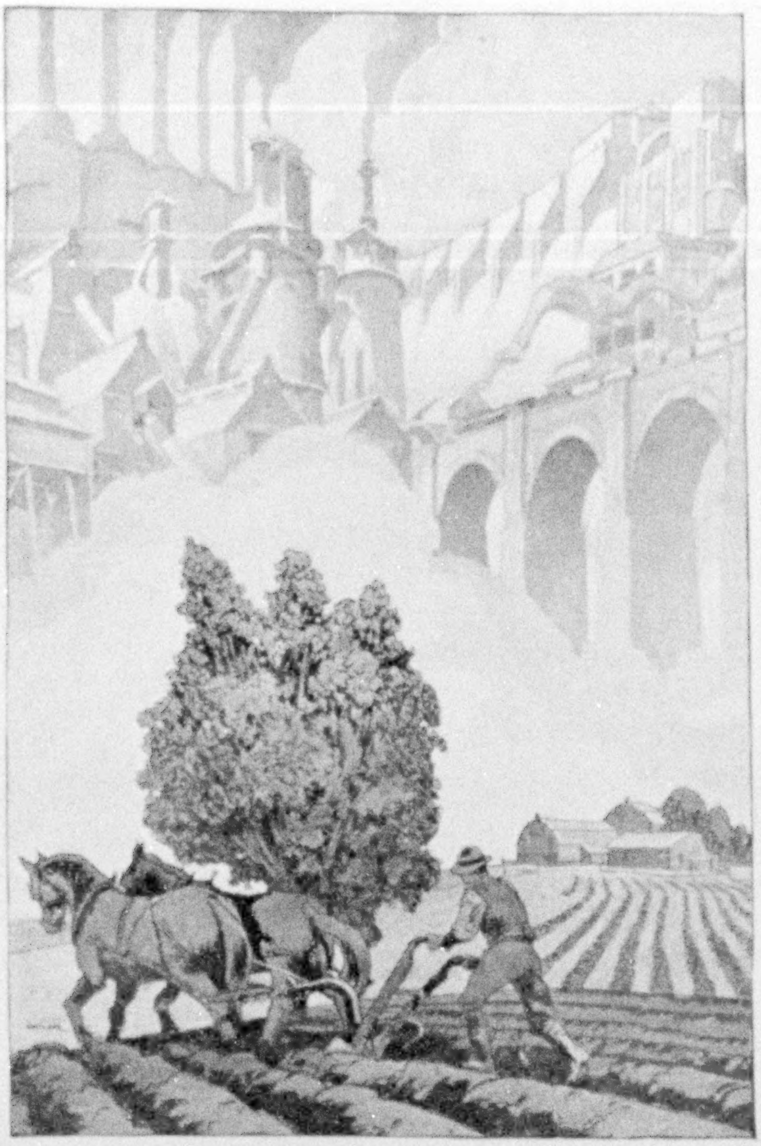
"The Home Fires," a most attractive fireplace book, with many designs, gives full directions for fireplace construction. Sent for 25 cents.

"A New House for the Old." Stop repairing and painting by veneering the old house with beautiful Face Brick. Booklet sent free.

A·F·B·A
USE FACE BRICK
—It Pays

AMERICAN FACE BRICK ASSOCIATION

1737 Peoples Life Building, Chicago, Illinois



*The Development Service of Southern Railway System, Washington, D.C., will gladly aid in securing industrial locations, farms and home sites in the South.*

# Not Magic – *just mind and muscle*

THE SOUTH—the nation's winter playground—is setting new high marks in the story of American achievement. For, notable as are the South's friendly climate and genial hospitality, it is on her farms and in her workshops of industry that these marks are being made.

In the last twenty-five years the value of things made in the South has increased fivefold; and the value of things grown fourfold.

Such growth and progress suggest the magic wand, but it is the magic of mind and muscle—of hard work intelligently applied. The people of the South are making good use of the rich and varied resources that nature has bestowed upon them.

But the industrial and agricultural progress of the South is still in the first act. The years of greatest opportunity and achievement lie ahead.

The Southern Railway System, with its 8,000 miles of lines, serves the South from the northern gateways at Washington, Cincinnati and Louisville—from the western gateways at St. Louis and Memphis—to the ocean ports of Norfolk, Charleston, Savannah, Brunswick and Jacksonville, and the Gulf ports of Mobile and New Orleans.

# SOUTHERN

*RAILWAY* THE SOUTHERN SR SERVES THE SOUTH *SYSTEM*

THE SOUTHERN SERVES THE SOUTH

# Canadian Pacific Cruises

*Oriental Sword Dancer*

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*From New York, Dec. 2*

Make the world your department store! Shop in Gibraltar for Spanish shawls . . . in Naples for cameos, corals . . . in Cairo for scarabs and amulets . . . in India for brass, brocades and bangles . . . in Ceylon, home of sapphires, rubies, garnets, moonstones, pearls . . . in Java, land of batik . . . in China for heirloom shawls, curios and jade . . . in Peking — 4 days — for mandarin coats, and Siberian furs . . . in Japan for silks, lacquer and cloisonne. For memories . . . *everywhere!* Sail on the S. S. Empress of Scotland, 25,000 gross tons; included excursions. One management ship and shore.

*5 Continents — 20 Countries*
*55 Days Ashore*

Madeira, Gibraltar, Algiers, Monaco, (Nice and Monte Carlo), Naples, (Pompeii), Haifa, (Jerusalem, Bethlehem, Mount of Olives), Port Said, (Cairo, the Pyramids, Sphinx and up the Nile), Bombay, Colombo, (Kandy), Padang, (Padang-Pandjang), Batavia, (Buitenzorg), Singapore, (Johore), Manila, Hongkong, (Canton), Shanghai, Chinwangtao, (Peking), Kobe, (Kyoto and Nara), Yokohama, (Tokyo, Nikko and Kamakura), Honolulu, Hilo, (Kilauea), San Francisco, Balboa, (Panama), Cristobal, (Colon), Havana and New York.

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One management ship & shore

## MEDITERRANEAN CRUISE

*From New York, Feb. 12*

Cruise like a guest of honor on a private yacht. Shop for wonderful bargains in Madeira, Cadiz, Seville, Gibraltar, Algiers, Malta, Athens and Constantinople; ramble for 19 days around Palestine and Egypt; discover Cattaro and Ragusa (Jugo-Slavia); explore Venice, Naples and Pompeii; and catch Monaco, Nice and Monte Carlo in the full lush bloom of rose-time. *Leave New York* Feb. 12 on the S. S. Empress of France, 18,350 gross tons. Two orchestras, one for symphonies, another for dancing. 15 countries; stop-over in Europe if desired, 17 foreign ports with included excursions; and — the same courteous, efficient management on shore as ship.

*17 Ports in*
*Europe, Africa and Asia*

Madeira, Cadiz, (Seville), Gibraltar, Algiers, Malta, Athens, Constantinople, Beirut, (Lebanon Mountains), Haifa, (Jerusalem, Bethlehem), Alexandria, (Cairo, Pyramids, Sphinx), Cattaro, (Cetinje), Ragusa, Venice, Naples, (Pompeii), Monaco, (Nice, Monte Carlo), Cherbourg, Southampton.

*"See this world before the next"*

WORLD'S GREATEST TRAVEL SYSTEM

PITTSBURGH
*Proof* Products
Glass-Paint-Varnish-Brushes

PARK *your piano at the curb!* You could without harm, if it were finished with this *perfected*

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—combines all the economical durability of the new-type finish with a glowing, distinguished, beautiful lustre that is actually enhanced by service—unharmed by gasoline, oil, grease, hot water from radiators, or severest extremes of temperature. It is the *perfected finish for all fine finishing.* Its use for refinishing automobiles is licensed only to responsible refinishing shops.

*For Manufactured Products*
For furniture and a wide range of manufactured products Mimax systems offer large economies because of fast drying, increased production and the elimination of costly processes, and storage space. Mimax systems installed under supervision of our Paint and Varnish Advisory Board. Write for information on your business stationery.

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Please send me Mimax color card, informing booklet and approximate cost of refinishing my car by the Mimax system.

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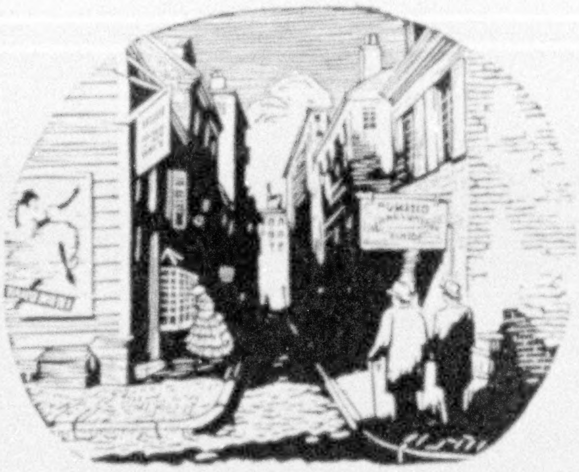



# Madison Square or Mullen Court —which is the better known?

BOTH are locations in New York. Both are on the map. But you need a New York address which is well known. An address which in itself is a business rating of high repute.

200 Fifth Avenue—the address of The Fifth Avenue Building on Madison Square—has been known to New York for seven decades. Before the Civil War it became the meeting-place for presidents, statesmen, generals, people of fashion and importance the world over. Here stood the famous Fifth Avenue Hotel. Like Central Park, the Battery, or the Grand Central, almost anyone can tell you where the building is and how to get to it.

Offices in this building have the quiet dignity of a club. Not every-one is admitted to tenancy. Questions are always asked among a firm's business friends. The two restaurants give you the opportunity of entertaining clients in a pleasant hospitable fashion.

The Fifth Avenue Building is at the heart of commercial New York. It is midway between the two rivers, midway between Central Park and the Battery. Three subway lines, an elevated, busses on Fifth Avenue and surface cars put you at once in touch with all up-town and down-town. The open area formed by Madison Square and its conjoining streets is unmatched in New York for light, air and a pleasing outlook.

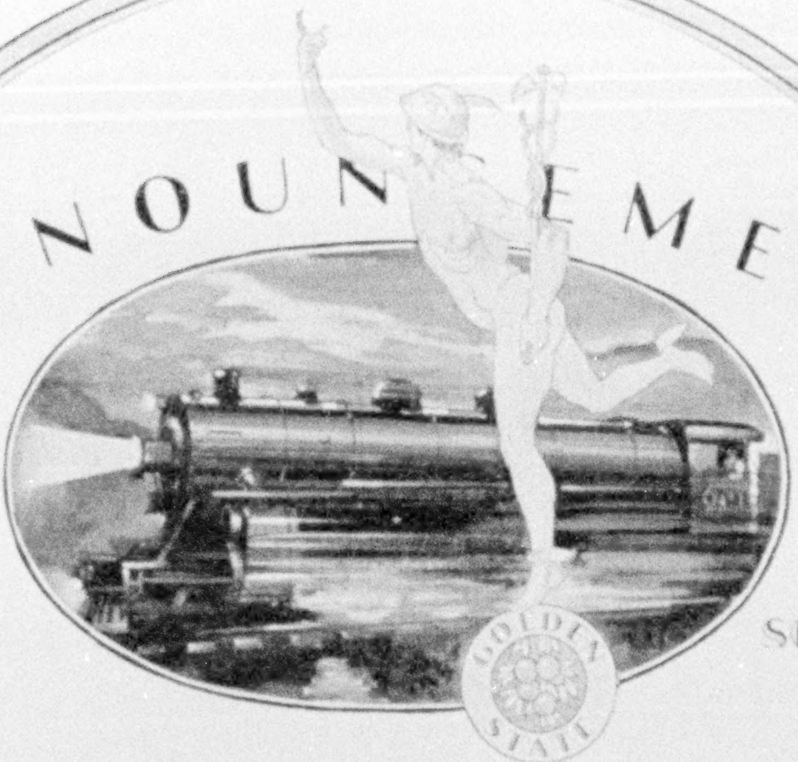
When you are in New York, we should be pleased to see you and talk over the advantages of opening your New York offices here.

*The* FIFTH AVENUE BUILDING

Broadway and Fifth Avenue at Madison Square

*"More than an office building"*

ANNOUNCEMENT

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The destructive enemy of sheet metal is *rust*. It is successfully combated by the use of protective coatings, or by scientific alloying to resist corrosion. Experience has proved that the copper steel alloy lasts longest. Insist upon

# KEYSTONE
## *Rust-resisting Copper Steel*
# Sheets
## AND ROOFING TIN PLATES

These products combine old-fashioned goodness and merit with modern methods of production. Standardize on Keystone quality for roofing, siding, skylights, cornices, spouting, gutters, tanks, flumes, stoves, ranges, metal lath, building construction, repairs and replacements—and all uses where *resistance to rust* is an important factor. Metal gives effective protection against fire, lightning and weather.

Keystone Copper Steel—steel alloyed with copper—is the established means of assuring the user maximum protection against damage and loss from rust and corrosion. It fully meets the modern demand for rust-resisting sheet metal, obtainable at a reasonable cost. It's time to standardize on Keystone Copper Steel for the benefit of yourself and added permanence to buildings of every type—residential, commercial or industrial. Actual time and weather tests, and practical service tests of every character, have established Keystone superiority over every other iron or steel sheet on the market to-day. Sold by leading metal merchants. Used by particular roofers and sheet metal contractors. For the evidence of Keystone excellence, write for descriptive literature showing the results of interesting and conclusive out-in-the-weather service tests. Our popular booklet—"Copper, Its Effect upon Steel for Roofing Tin" will be of interest to you.

### *Sheet Mill Products*

Black Sheets for all purposes, Apollo and Apollo-Keystone Copper Steel Galvanized Sheets, Culvert, Flume and Tank Stock, Formed Roofing and Siding Products, Special Sheets for Stamping, Full Finished Sheets, Automobile Sheets, Electrical Sheets, Stove and Range Sheets, Barrel and Keg Stock, Etc.

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*Manufactured by* AMERICAN SHEET AND TIN PLATE COMPANY, *Pittsburgh, Pa.*

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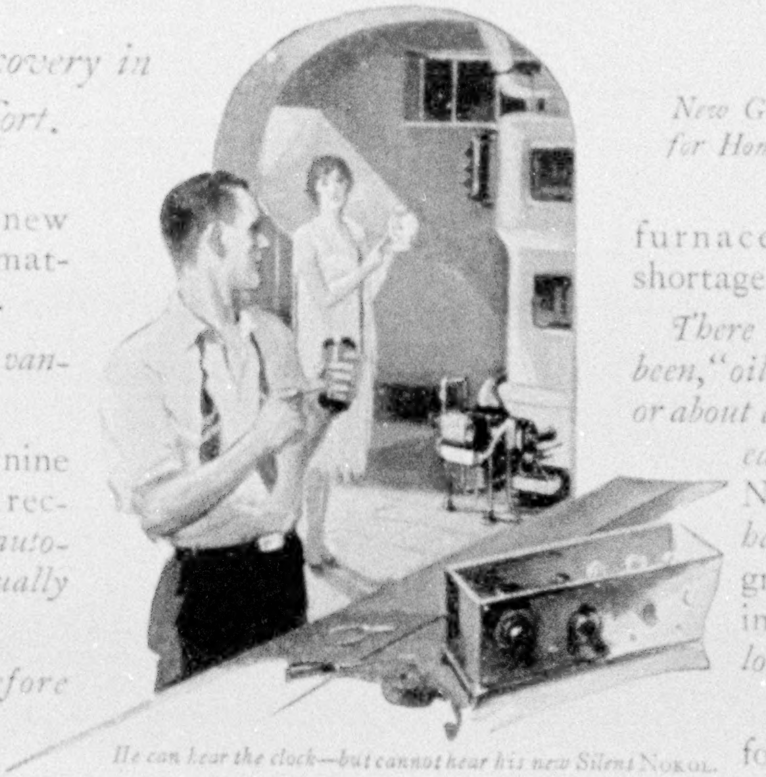
# *Silent*

## NOKOL *automatic* OIL HEAT!

*A sensational new discovery in home-heating comfort.*



*He can hear the clock—but cannot hear his new Silent* NOKOL.

HERE is a remarkable new betterment in automatic oil heat. For *any* home.

*Noise has been cut to the vanishing point.*

*High efficiency*, which for nine years past has established records for *lowest-cost, fully automatic oil heat—is now actually increased.*

*More comfort than ever before is delivered at the same remarkably low cost.*

Right now, as a result, shrewd American home-owners are investing *one-and-a-half million dollars—monthly*—in Silent NOKOL installations. A record for the industry NOKOL founded. NOKOL also holds all records for number of homes heated (*more than 35,000*) and for length of service in those homes (*periods up to nine years!*).

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This is heat you can forget about—except to revel in its comfort. NOKOL-owners usually *pay less for their heat* than hard-coal would cost; *never more*. There is, of course, no dirt, no furnace work, no fuel-shortage.

*There is not, never has been, "oil-burning" odor in or about any* NOKOL-*heated home.* Because NOKOL *does not have to burn* low-grade, foul-smelling fuel to provide *low-cost* heat!

This comfort is for *small* homes, or *large*. NOKOL is one of the few automatic oil burners made in sizes to suit *any* home, to *fit* any good, present heating plant.

FREE

*New Guide to Oil Heat for Homes. Send coupon.*

### *New Book*—FREE

Send coupon below and learn where, in *your own vicinity*, the new Silent NOKOL may be seen operating. You will also receive, free, a valuable new book on Oil Heat.

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First domestic oil burner listed by Underwriters' Laboratories; approved by all leading safety boards. Manufactured and guaranteed by AMERICAN NOKOL COMPANY, Chicago

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Edited by LUCY WHEELOCK

*Head of The Wheelock School for Kindergartners, Boston*

*The Kindergarten Children's Hour* offers a rich library of the most carefully selected material to help mothers in guiding and instructing their children.

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In one volume you will find 135 matchless stories especially adapted for very little children—and such stories are the hardest of all stories to find. Another volume is crammed full of just the right suggestions for games and occupations to answer adequately the cry of "What can we do now, mother?" A third volume tells you how to explain, in a way intensely interesting to your children, the every-day things of life that every child wants to know. Still another volume contains wonderfully inspiring and helpful advice by one of the world's leading experts upon child training, telling how best to handle children of every temperament on all occasions. And, lastly, a volume of 155 songs that children love, together with singing games.

This gives you but a faint idea of the wealth of material in these five volumes.

Simply fill out and mail the coupon at left. The postman brings the five volumes to your door. We want you to inspect these books for a week at your leisure, *free*.

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Please send me the five volumes of *The Kindergarten Children's Hour*. If they are not just what I want, I will return the books within seven days after receiving them, without obligation, or, if satisfactory, I will pay $1 within seven days after receipt of the books and $2 a month thereafter for seven months, or $14.25 within seven days after receipt of the books, in full payment.

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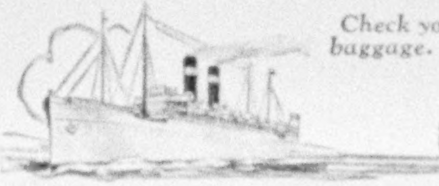

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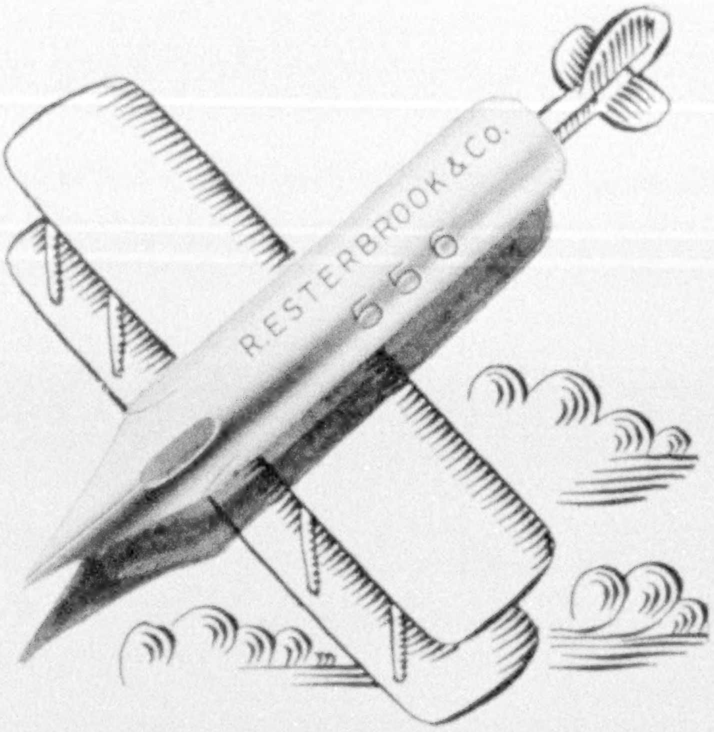
his Life Insurance paid up!"
PRUDENTIAL
STRENGTH OF
GIBRALTAR
THE PRUDENTIAL INSURANCE COMPANY of AMERICA
EDWARD D. DUFFIELD, President
HOME OFFICE, Newark, N. J.

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*GRACEFUL, speedy as a 'plane! The letters flow—the school work's done—the office folk are neat and rapid—all because the pen is* FRESH!

An old pen's costly—messy, slow. It wastes your work and spoils your temper. New pens *save*—they're fast and clean. It pays to keep some FRESH pens handy—those that *stay* fresh—Esterbrooks!

There are Esterbrooks to humor every hand and every pen-use. You will catch the *mood* for writing with an Esterbrook to speed your thoughts.

Clip the coupon—get some samples. You will like their quick, bright freedom. Why not *try* them? Here's the coupon.

TRUE ECONOMY, ALWAYS A FRESH

# Esterbrook

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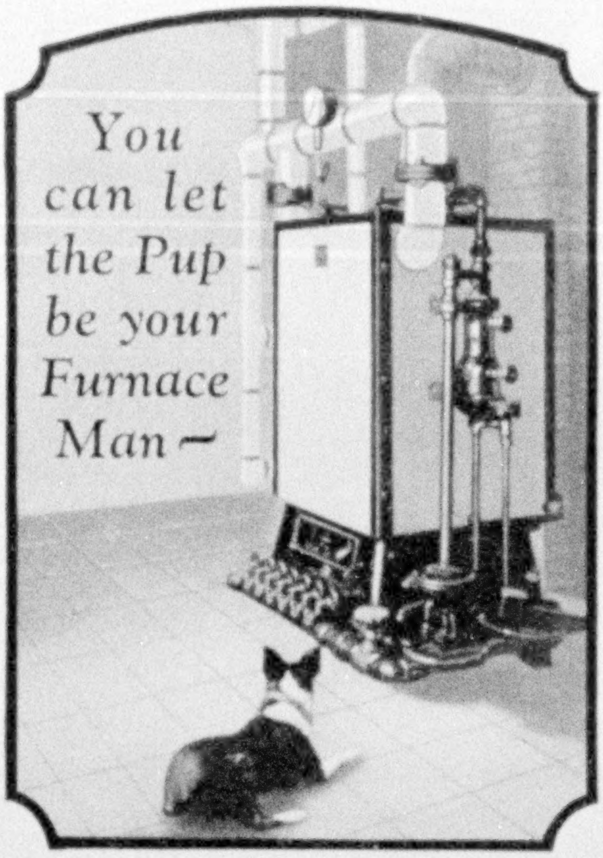
☐ Send me, free "The Book of 100 Famous Signatures," showing the autographs of illustrious men and women—and a sample of Pen No. 556.

☐ Send me, free, the Esterbrook Chart of Handwriting to help me find the pen best suited to my hand—also a sample of Pen No. 556.

☐ I enclose 15 cents, for which send me the "12 Most Popular Pens in the World."

WRITE YOUR NAME AND ADDRESS IN THE MARGIN BELOW

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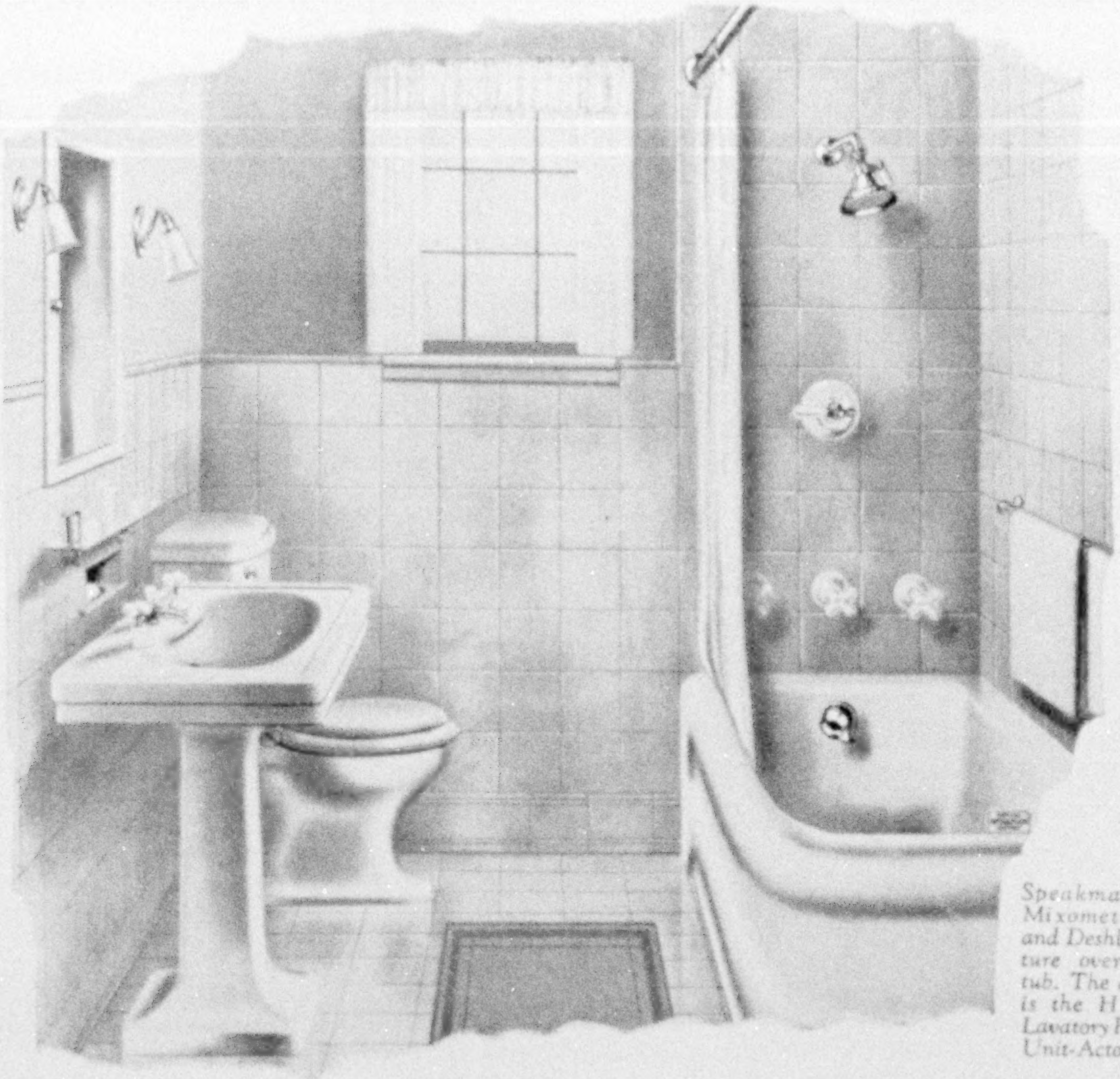
GAS heating requires no more care than a pup can give it—which means no care at all. Gas is the cleanest fuel obtainable. Automatically controlled, it maintains constant, uniform temperatures—as warm as you wish by day—as cool as you desire at night.

Special house heating rates granted by many gas companies, and the high efficiency of Bryant Gas Heating Plants, have made gas the logical fuel for thousands of homes. Gas heating information will be furnished gladly by your local Bryant office, or write The Bryant Heater & Mfg. Co., 17823 St. Clair Ave., Cleveland, Ohio.

*Branches in 27 Principal Cities*

# BRYANT GAS HEATING

# COVER UP THE SHOWER



*Speakman H052½ Mixometer Shower and Deshler Bath Fixture over a built-in tub. The combination is the H 2370. The Lavatory Fixture is the Unit-Acto.*

## —and the Bathroom Seems Incomplete

[*The bathroom is incomplete without a shower—it is the modern touch*]

—But you want to make sure that your shower itself is modern.

The Speakman Company has developed and manufactured showers for the last twenty-five years of the fifty-seven years which we have been identified with the plumbing industry.

The Anyforce Head, which controls the water's force, and the Mixometer, which regulates the temperature, are examples of this development. There are Speakman Showers for all kinds of installations—over a tub or in a stall.

Then there are also Speakman Bath and Lavatory Fixtures which have behind them this same development by the Speakman Company. Handles and escutcheons on Speakman Bath and Lavatory Fixtures harmonize perfectly with the handles and escutcheons on Speakman Showers.

*We shall be glad to send you a booklet on Speakman Showers and Fixtures. Use the coupon if more convenient.*

SPEAKMAN COMPANY, Wilmington, Delaware

# SPEAKMAN SHOWERS and FIXTURES

SPEAKMAN COMPANY, Wilmington, Delaware

*Please send me folders and literature on the Speakman Line of Showers, Bath, Lavatory and Sink Fixtures.*

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about the birds, the beasts, the fish of the sea, the butterflies of the fields and the flags of all nations, beautifully reproduced in full natural colors.

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It operates on a single flashlight battery which is furnished. (No electric connections.)

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If your dealer is out of stock we will send it to you anywhere in the U. S. for $3.50

Also manufacturers of
KNAPP MINIATURE MOTORS
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From New York, January 15, 1927

## A Voyage of Adventure

To South and East Africa—lands of Zulus, Diamond Mines, the Golden Rand, Victoria Falls — also West Indies, South America, Egypt, Europe — 101 glorious days.

By M.V. "ASTURIAS"

First great cruise by a motorship—the world's most luxurious liner. Rates, including shore excursions, from $1650.

THE NEW
MEDITERRANEAN CRUISE
From New York, Feb. 26, 1927

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*in cooperation with*
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*The Luxury Cruise to the*

# Mediterranean

PALESTINE EGYPT

By the famous "Rotterdam"
6th Cruise

Leaving New York, Feb. 3, 1927
*Under the Holland-America Line's own management*

The "ROTTERDAM"
**24,170 tons reg., 37,190 tons displ.**

Has a world-wide reputation for the magnificence and comfort of her appointments, the surpassing excellence of her cuisine and the high standards of service and management on board.

**70 Days of Delightful Diversion**

ITINERARY includes Madeira, Cadiz, Seville, (Granada) Gibraltar, Algiers, Naples (first call), Tunis, Athens, Constantinople, Haifa, Jerusalem, (The Holy Land), Alexandria, Cairo (and Egypt), Cattaro, Ragusa, Venice, Naples (second call), Monaco, and the Riviera, Carefully planned Shore Excursions. Stopover in Europe. Number of guests limited. **American Express Co. Agents in Charge of Shore Excursions.**

For choice selection of accommodations make RESERVATIONS NOW. Illustrated Folder "N" on request to

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by the Luxurious
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HOLLAND-AMERICA LINE
in cooperation with the
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*Traffic Stopped to watch this test of the*
*Parker Duofold Non-Breakable Barrel*

## Such Proof Is a Better Guarantee Than Any Maker Can Give You

YES, traffic stopped as big Frank Ketcheson, Supt. of Steel Construction for the George A. Fuller Co., dropped two Parker Duofold Pens—one Over-size, one Junior size—from his perilous foothold on a slender steel girder of the new Stevens Hotel, 260 feet above 8th Street and Michigan Avenue, Chicago.

One pen struck on asphalt, the other on cement—away they bounded into the air, then landed in the street—unharmed! Thus we have proved by a series of heroic tests that the new Parker Duofold Pens with Permanite barrels do not break.

Some were run over by heavy motor buses. And one was let fall from an aeroplane, 3000 feet, without damage.

Go see this master pen at any good pen counter. But look with care for the name of the originator "Geo. S. Parker" on the barrel. Then imitations can't deceive you.

*Parker Duofold Pencils to match the Pens: Lady Duofold, $3; Over-size Jr., $3.50; "Big Brother" Over-size, $4*

THE PARKER PEN COMPANY, JANESVILLE, WISCONSIN
OFFICES AND SUBSIDIARIES: NEW YORK · CHICAGO · ATLANTA · DALLAS
SAN FRANCISCO · TORONTO, CANADA · LONDON, ENGLAND

Red and Black Color Combination Reg. Trade Mark U. S. Pat. Office

**Parker Duofold** OVER-SIZE $7

*Lucky Curve Feed and 25 Year Point*

Duofold Jr. $5 Lady Duofold $5

### THE SUPERINTENDENT'S LETTER

Chicago, June 15th, 1926

The Parker Pen Company, Janesville, Wisconsin.

Gentlemen:

Steel work on the new Stevens Hotel was stopped this afternoon while I went to the top-most girder, 25 stories above Eighth Street and Michigan Ave., and dropped two Parker Duofold Pens to the street, 260 feet below.

One pen—a Parker Over-size Duofold—alighted on the cement sidewalk. The other—a Parker Duofold Jr.—alighted on the pavement.

Both pens were immediately picked up by my associates and on examination were found to be unharmed. To make this test it was necessary to block off passage through the street and a large number of people had collected to watch the experiment. I never saw a more amazed crowd in my life than when I reached the ground and found these people gathered about the Parker Duofold Pens. They had expected them to be dashed to fragments—but found them quite whole, in fact as good as new, except for a small abrasion on the end of the bigger pen. I have signed this letter with that identical Parker and it works to perfection.

My hat is off to the Parker Non-Breakable Duofold.

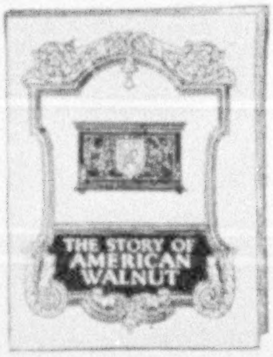
Yours very truly,

Frank Ketcheson

Supt. of Steel Construction, George A. Fuller Company
Builders of the Stevens Hotel

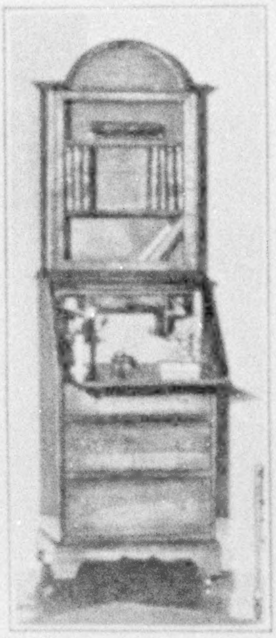
*Where the Pens Landed*

The New Stevens Hotel—Chicago—will open about March 1, 1927




# How to get more for your Furniture dollar

## *—explained in this free book*



*An early American Walnut Secretary*

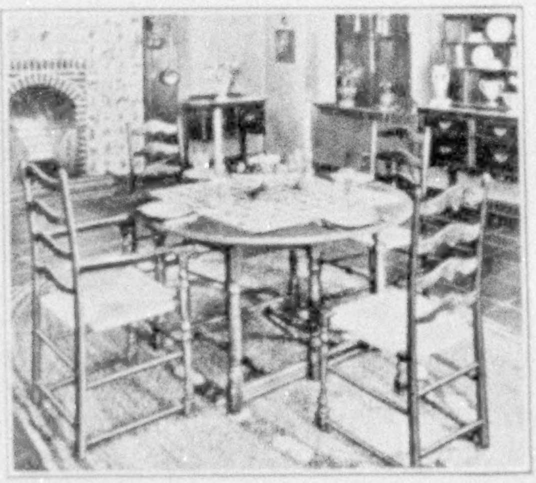
THE vogue for walnut is increasing yearly. Many decorators now specify this beautiful wood almost exclusively. The finest furniture-makers work in walnut. Walnut combines in a unique way beauty, durability, strength. It is easily cared for; resists wear. Grows more beautiful with age.

* * *

We offer a free service to help you select walnut furniture for your home. How to tell real walnut, the best designs, what the "periods" of furniture are—all this information we'll gladly give you.

*Our Service:*

We publish beautifully illustrated booklets on furniture and on interior woodwork. Please write us which you are interested in. We will be glad to help you. Fill in and mail this handy coupon today.



*Ladder-back chairs make this dining room attractive*

*"THIS IS THE AGE OF WALNUT"*

AMERICAN WALNUT

American Walnut Manufacturers' Ass'n
Room 960
616 S. Michigan Ave.
Chicago

Please send full information on American Walnut. I am interested in walnut furniture ☐; walnut for interior woodwork and paneling ☐ (Check which)

# "The Voyage of Your Dreams"

## Around-the-World

59 Ports and Cities
138 Days 25 Countries
37,511 Miles

A cruise that offers the golden opportunity to see the wonder places of the world under the most favorable circumstances. The right seasons everywhere—the Holy Land at its best; Cairo in the brilliant social season; India in cool weather like our May; Peking in Springtime; and Japan in Cherry Blossom Time. In addition all the Oriental Ports of all other world cruises plus Siam, Borneo and Formosa.

on the

*"Queen of Cruising Steamers"*

**RESOLUTE**

Sailing Eastward from New York

**JAN. 6th, 1927**

Built for tropical service, and luxuriously appointed throughout, the RESOLUTE represents the acme of cruising comfort. Unusual spaciousness characterizes the public rooms, staterooms and decks.

One Management on Ship and on Shore.

An extraordinary program of shore excursions included in the rates of $2,000 and up.

*Descriptive literature of the Fourth World Cruise of the RESOLUTE will be sent upon request.*

**HAMBURG-AMERICAN LINE**

United American Lines, Inc.
*General Agents*

35-39 Broadway, New York — 177 N. Michigan Ave., Chicago
131 State Street, Boston — 230 South 15th St., Philadelphia
574 Market Street, San Francisco
*or Local Steamship and Tourist Agents.*

# Mother—Guard Those Lovely Teeth

## *They're Priceless!*

She'll thank you in after years if you teach her now the way to healthy, happy teeth. And you can't afford to let her take chances, for her beauty, her health and her mental development, all depend so much on her teeth. Teach her the simplest, yet most effective beauty secret in the world . . . Colgate's Ribbon Dental Cream.

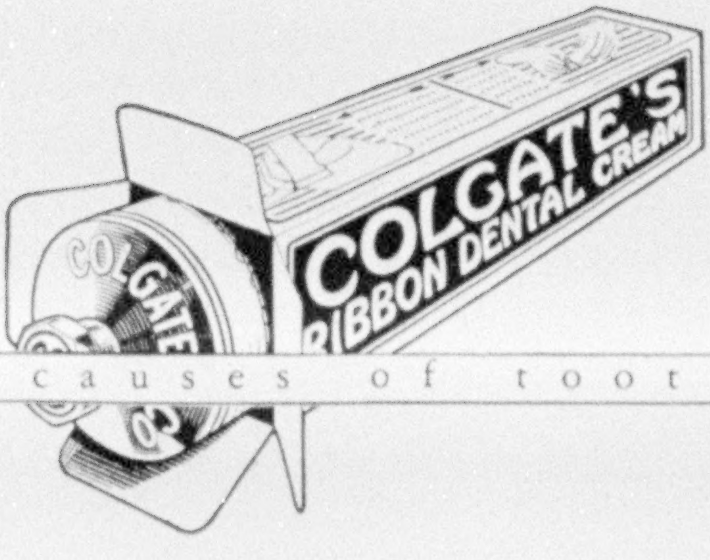
* * *

Colgate's is the modern way to protect the charm of beautiful teeth. It makes them flash white and lovely when you talk or smile. It brings out all their natural beauty. But more important . . . it will help to keep your teeth and gums healthy, for Colgate's foams into every hard-to-get-at place between the teeth and under the edges of the gums.

### Remove Those Causes of Decay

Colgate's penetrates every place where it is possible for germs and food particles to collect. It loosens these impurities at once. Then it washes them away, leaving your teeth and gums absolutely clean. The warm, dark interior of your mouth is an ideal breeding place for germs. But they can't lurk there and multiply, when you use Colgate's regularly. Colgate's literally goes right into their hiding places and removes those causes of tooth decay.

Your mouth feels clean after using Colgate's . . . and it is clean. You'll like the taste of Colgate's . . . even children love to use it regularly.




Priced right, too!
Large tube... 25c

r e m o v e s   c a u s e s   o f   t o o t h   d e c a y

# Orient

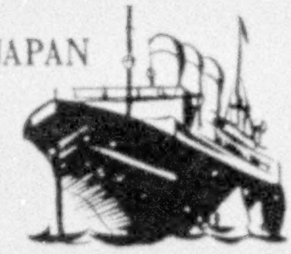
*This Is the Time to Come!*

COME to the Land of the Rising Sun—and the gay umbrella! Come to Japan where the houses are just the size of your heart, and as clean as the rain-washed air. Where shopping is an art, a play, a joyous game of smiles, bows and delicate trifles . . . and you can't believe your luck until you find your friends have bargains just as wonderful.

COME to China—to Shanghai with its gay concessions and the great native city, embroidered on the fringe of a continent of fascination—full of gardens, temples, bazaars; marvelous things to see and buy. To Hong Kong, towering out of the blue, a ravishing Oriental Riviera, steeped in sunshine and flowers. Come to the Philippines—to exotic Manila, at the gateway of the South Pacific isles.

BUT COME FIRST to the Canadian Pacific, the World's greatest travel specialist, with the largest, fastest, newest ships on the Pacific—the famous great Empress Liners. Canadian Pacific has a way of looking after you that comes from forty years of knowing how.

**Only 10 Days to JAPAN Then China and Manila—**

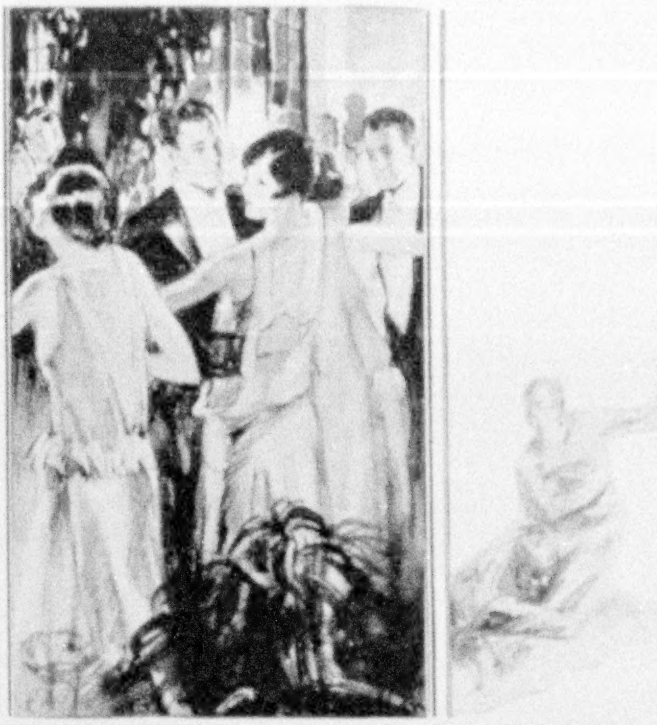


Empress Liners sail from Vancouver, connecting at Victoria.

*Offices in all large cities including*
New York, 344 Madison Ave.; Chicago, 71 East Jackson; San Francisco, 675 Market St.; Montreal, 141 St. James St.

## Canadian Pacific

KREMENTZ CORRECT EVENING JEWELRY



# The boy who is away

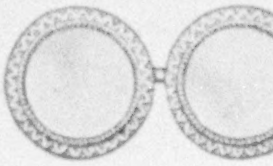
HOW do you like to think of him best? In the fury of the game?—Or do you think of him most when happiness dominates—when he is well-dressed, sure of his appearance?

You can contribute much to his feeling of perfect ease in full dress or tuxedo. You can make sure that on the occasions requiring evening clothes your thoughtfulness will have assured him of correct evening jewelry. Give him a Krementz Full Dress and a Krementz Tuxedo Set.

The prescribed form is white mother-of-pearl for full dress, dark mother-of-pearl for tuxedo. *Vest buttons must always match studs and links.*

At your dealer's. Write us at Newark, N. J., for booklet with Correct Dress Chart.

## Krementz



Set No. 1488, Krementz quality rolled whitegoldplate rims, white mother-of-pearl centers. Pair links, 3 studs, 4 vest buttons . . . . In box $11.50

# 76 out of 100 Government Executives agree on one Razor—Gillette

The very nature of their occupation requires that those in charge of affairs of state be groomed perfectly. When a careful inquiry reveals that 76 out of 100 shave each morning with a Gillette, it is another real proof that, *based on the perfection of its shaving service, Gillette pre-eminence is an accomplished fact!*

*Whether you have a beard "like wire" or as soft as silk, your GOOD shave will become a PERFECT shave if you read "Three Reasons"—a new shaving booklet just published. A copy with our compliments, on request.*

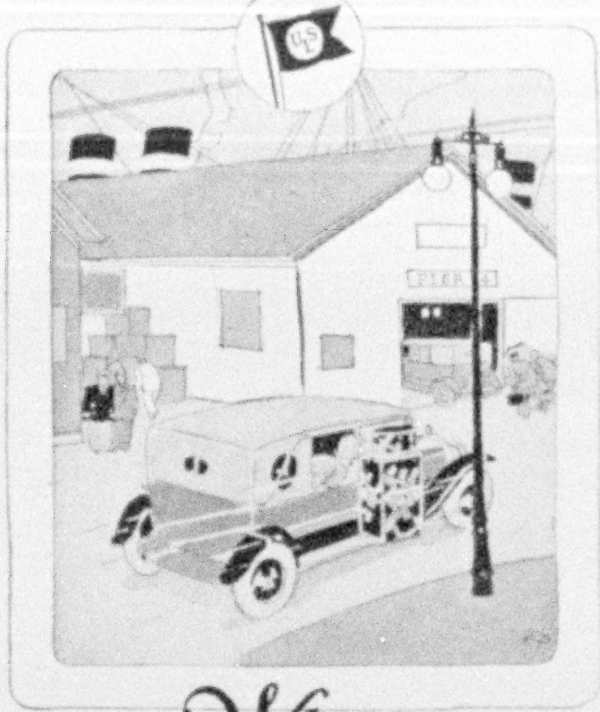
GILLETTE SAFETY RAZOR CO.
BOSTON, U. S. A.

$5 to $75
THE BOSTONIAN
In Gold Plate, $6.
In Silver Plate, $5.

*The New Improved* **Gillette**

SAFETY —Gillette— RAZOR

THE QUALITY RAZOR OF THE WORLD



# *When* an American goes to Europe

EVERY American sailing for Europe is entitled to all the little luxuries, comforts and attentions that are offered by the finest hotels of the land. On any United States Lines Ship (America's only flag service to Europe), he gets these things—and more. There is a passage for every purse—and you'll enjoy the best cuisine on the North Atlantic on these five splendid ships.

### S. S. GEORGE WASHINGTON

Swift, steady, beautiful—a luxurious home on the sea. First class rates from $210, second class from $136.25 and Tourist Third class from $97.50.

### S. S. LEVIATHAN

Flagship of the fleet and the most famous ship in the world. First class rates from $265, second class from $147.50, Tourist Third from $102.50.

### S. S. PRESIDENT HARDING and S. S. PRESIDENT ROOSEVELT

The fastest Cabin Ships on the North Atlantic. No first or second class distinctions. Rates from $145, Tourist Third from $95.

### S. S. REPUBLIC

The famous cruise liner. A Cabin ship without first or second class distinctions. Rates from $140, Tourist Third from $95.

*Regular sailings from New York to Cobh (Queenstown), Plymouth, Southampton, Cherbourg, Bremen. Get complete information from your local steamship agent or write to the address below*

## United States Lines

45 BROADWAY NEW YORK CITY

# BELGENLAND WORLD CRUISE

## ON A VOYAGE OF 132 DAYS 129 WERE SUNNY

It was a *Belgenland* world cruise—and there were actually only three days in four and a half months that weren't sun-brightened.

No magic, this—but the result of skilful planning.

So you sail to sixty interesting cities, all around the world, and find each in its brightest, loveliest season. An itinerary—sent on application—will give you a clear idea of the scope and wonder of this splendid cruise.

The **Belgenland,** largest and finest liner that ever circled the globe, sails from

**New York December 14**
Los Angeles Dec. 30 San Francisco Jan. 2
Back in New York April 24, 1927

**60 cities** **14 countries**
**132 days** **28,000 miles**

For complete information address—
Red Star Line, No. 1 Broadway, New York; American Express Company, 65 Broadway, New York; Branch Offices in principal cities, OR AUTHORIZED AGENCIES.

The *Belgenland's* next transatlantic sailing is October 16 to Plymouth, Cherbourg, and Antwerp.

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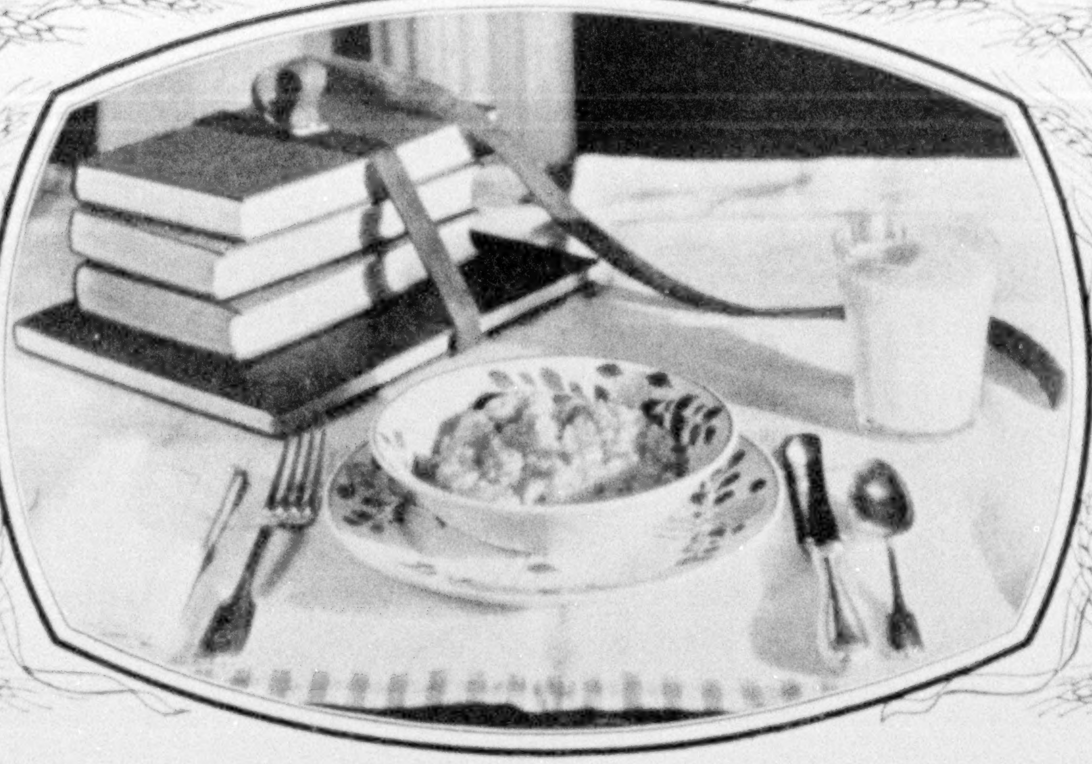
## RED STAR LINE

INTERNATIONAL MERCANTILE MARINE COMPANY
*in cooperation with*
**AMERICAN EXPRESS COMPANY**



*Either at Breakfast or Supper Growing Children Need*

# The New Pettijohn's

**WHOLE WHEAT CEREAL**

THE New Pettijohn's is the *whole wheat*—the finest hard Montana wheat, milled by an exclusive process.

It has all the natural bran of the wheat—a safe and efficient laxative.

It has the health-giving vitamins of the wheat.

And the valuable mineral salts, protein and energy.

The New Pettijohn's is delicious—a nourishing, stimulating food that all the family will enjoy.

It cooks in 3 to 5 minutes—ready for the table—hot and appetizing.

Try it tomorrow.

*In brief*

*The* New Pettijohn's is a deliciously palatable whole wheat food.

It contains all the Vitamins, Energy Content and Mineral Salts of the Wheat Berry and all the Natural Bran.

With milk it forms one of the best balanced food combinations known to dietitians. It cooks in 3 to 5 minutes.

**The Quaker Oats Company**

CHICAGO, U.S.A.

"The Sunshine Belt to the Orient"

*Outdoor Chinese Cafe*

# Orient
## Round the World

**combining the only fortnightly service Round the World with the fastest service to the Orient**

Visit Honolulu, Japan, China, Manila, Malaya, Ceylon, Egypt, Italy, France, Boston, New York, Havana, Panama Canal, Los Angeles and San Francisco. 22 ports in 14 countries. Strange peoples, rare beauties, reminders of an ancient civilization, mysticism, charm.

Stopover where you like for two weeks, four weeks or longer, continuing on another ship exactly like the one on which you departed. At all ports, however, there is time for sight-seeing during the ship's scheduled stay.

And on your trip enjoy the luxury and comfort of a magnificent President Liner—broad of beam, steady and comfortable. Outside rooms with beds, not berths. Commodious and beautifully appointed. A world-famous cuisine.

The entire trip—transportation, accommodations, meals for the 110-day circuit of the world costs little if any more than you spend at home. It may be made for as little as $11.37 per day.

A sailing every Saturday from San Francisco (every two weeks from Boston and New York). Likewise a sailing every 12 days from Seattle direct to the Orient without call at Honolulu.

*Complete information from your local steamship or railroad ticket agent or*

**Dollar Steamship Line**
**Admiral Oriental Line**

604 Fifth Avenue, New York — 25 Broadway, New York
32 Broadway, New York
Robert Dollar Building, San Francisco
1519 Railroad Avenue, South, Seattle

COME UP TO

# ASHEVILLE
## NORTH CAROLINA

IN THE LAND OF THE SKY
ALL OUT DOOR SPORTS
WRITE FOR LITERATURE
ASHEVILLE CHAMBER OF COMMERCE
ASHEVILLE, N. C.

# Norfolk

In the heart of Virginia's famous all-year playground. Unexcelled climate. Golf and horseback riding at Virginia Beach, fishing at Ocean View. The best duck shooting on the Atlantic Coast in the Back Bay section.

See famous old Cape Henry, Fortress Monroe, the Norfolk Navy Yard, Naval Hospital, etc. Convenient nearby tours may be arranged for visiting the cradle of American history—picturesque Jamestown, Williamsburg and Yorktown.

Make Norfolk your headquarters. Modern hotels. Excellent accommodations. Address Norfolk-Portsmouth Tourist and Information Bureau, Norfolk, Virginia.

**Write for Booklet**

## HOW MUCH POSTAGE?

Let a "Pelouze" Scale Tell You

It gives the exact amount of postage required, in cents, on all mail matter, including parcel-post rates by zones. Warranted accurate. Beautifully finished in gray or bronze enamel.

Made in Several Styles

Intended for individual desk, library, office or shipping department.

*For sale by leading dealers everywhere. Ask for "Pelouze" Scales. Send for Catalogue.*

Pelouze Mfg. Co., 232 E. Ohio St., Chicago
Man'f'rs "Pelouze" Household and Infant Scales

Good Buildings Deserve Good Hardware
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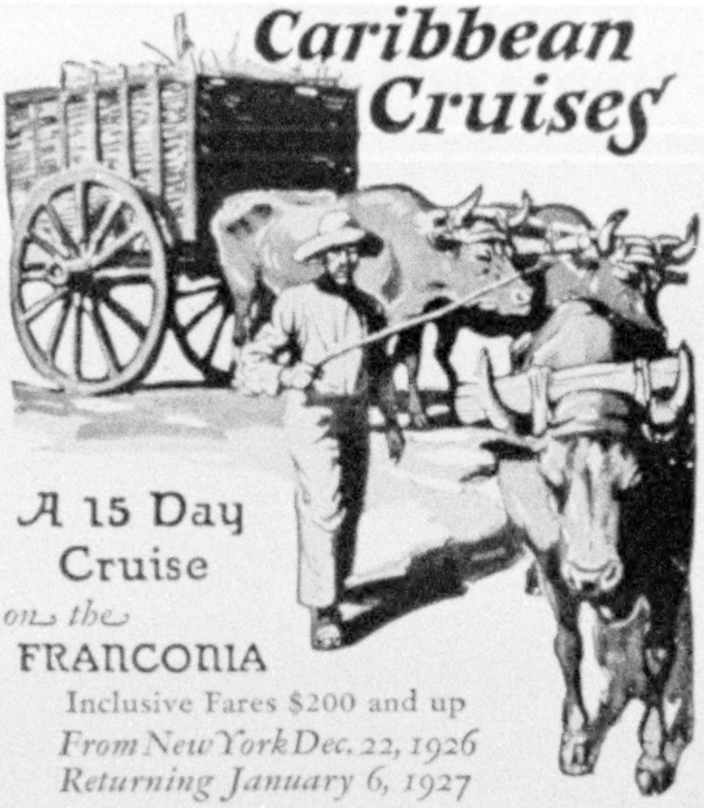
C-L-O-S-E-D! as quietly as you say it and as quickly—by a Corbin Door Check
Look!—this door shuts itself now. No longer will its owners dread the unexpected slam, the irritating draft, the everlasting caution—"Shut the door." A Corbin Door Check is in control.
There is no law to prohibit slamming doors, but there are Corbin Door Cheeks. To end forever those noisy sprees and lusty drafts is their life work. And they never die young. Wherever Good Hardware is sold you will find them.
P. & F. CORBIN SINCE 1849 NEW BRITAIN CONNECTICUT
The American Hardware Corporation, Successor
New York Chicago Philadelphia

# CUNARD
## Caribbean Cruises



A 15 Day Cruise on the FRANCONIA

Inclusive Fares $200 and up

*From New York Dec. 22, 1926*
*Returning January 6, 1927*

The Sun is Nature's Healing Force. It tones the skin—invigorates the body. An abundance of sunshine—that is the privilege of this romantic short sea trip over Christmas and New Year's. *Porto Rico, Jamaica, Havana, the Bahamas* on a palatial world-renowned Cunarder, in ideal spring-like weather.

A pleasure cruise that makes for health!

also **Two 31 Day Cruises** on the new CALEDONIA

Inclusive Fares $300 and up

*From New York Jan. 22, returning Feb. 22*
*From New York Feb. 26, returning Mar. 29*

*To Nassau, Havana, Port au Prince, Kingston, Colon, Curacao, La Guayra, Trinidad, Barbados, Martinique and Bermuda.*

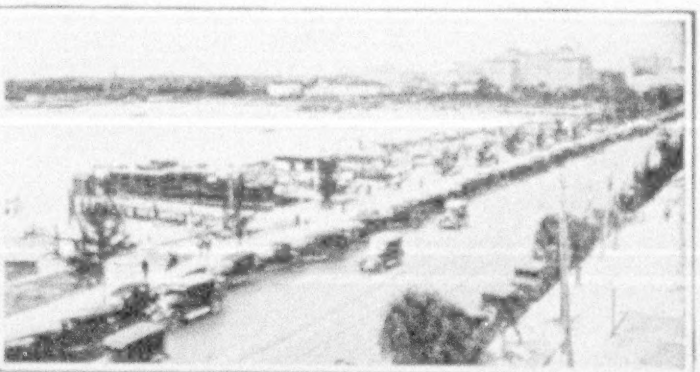
The Caledonia is a beautiful, modern ship, equipped with the new thermo tank ventilation system which supplies a current of cool fresh air—under the passengers' control—to every stateroom, an innovation of great comfort while cruising in the tropics. Electric fans in every room.

*Cunard Cruises are distinctive — not merely ordinary voyages. They are in luxurious ships and under the direction of Cunard, —"First Family of all the Seas."*

## CUNARD
*And* ANCHOR *Lines*

25 Broadway, New York
*or Branches and Agencies*





## Come and Play

ST. PETERSBURG, the Sunshine City, invites you. All kinds of fun await you here—boating, fishing, swimming in Gulf and Tampa Bay, golf on four splendid courses, tennis, roque, lawn bowling and every kind of sport. Sunshine 360 days a year. Excellent accommodations. Hospitality. Write for booklet. Address: A. E. O'Connor, Chamber of Commerce.

**St. Petersburg**
*Florida*
*The Sunshine City*



## Clark's Famous Cruises

By CUNARD-ANCHOR new oil burners at rates including hotels, guides, drives and fees.

**121 Days, $1250 to $2900**

## ROUND THE WORLD

**ss "California" sailing Jan. 19**

7th cruise, including Havana, Panama Canal, Los Angeles, Hilo, Honolulu, 18 days Japan and China, Manila, Java, Burma, option 17 days India, Ceylon, Egypt, Palestine, Greece, Italy, Riviera. Europe stop-overs.

**23rd MEDITERRANEAN CRUISE**; JAN. 29; 62 DAYS, $600 TO $1700

**FRANK C. CLARK, Times Bldg., N. Y.**



## BRAND PEONIES

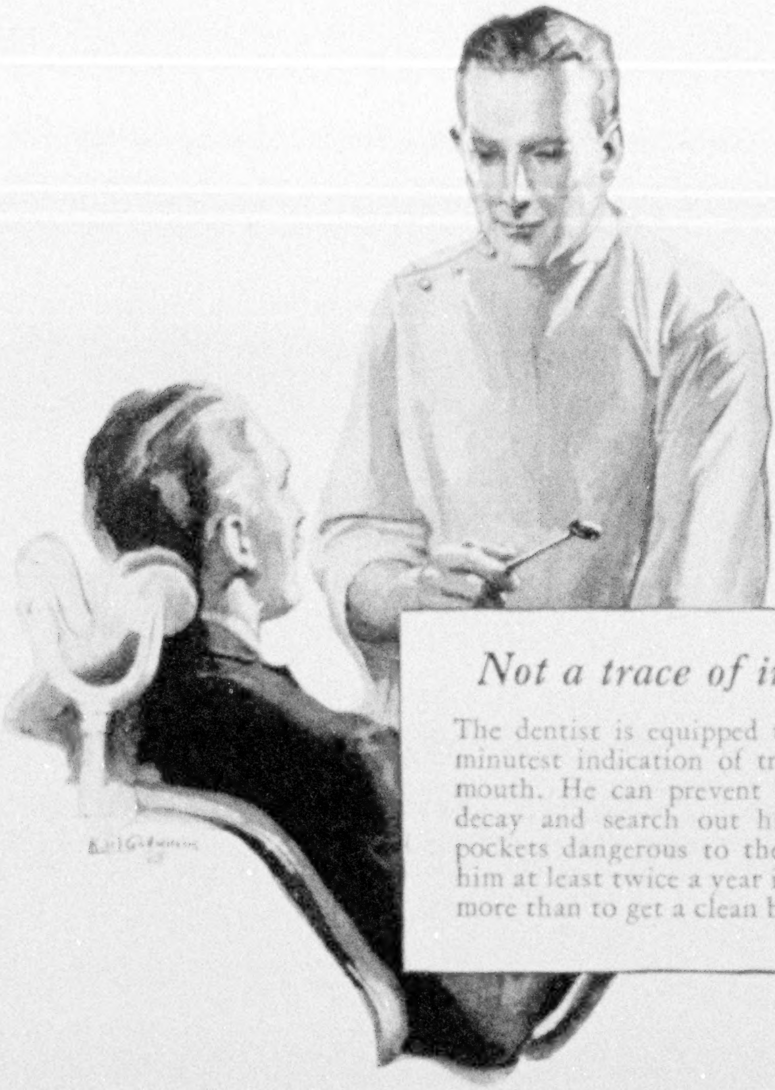
OUR new Peony and Iris Price List, which is the most complete and up-to-date list of Peonies and Iris we have ever issued, is just off the press. It submits a superb offering from

**America's Oldest Peony Collection**

It is being mailed out by us to all our old customers. It is free to those not on our mailing list who desire a copy. Write for it. We know that you will find it worth while.

*Peony Growers for over 50 years*

BRAND PEONY FARMS
Box 44, FARIBAULT, MINN.



### *Not a trace of infection*

The dentist is equipped to detect the minutest indication of trouble in the mouth. He can prevent serious teeth decay and search out hidden poison pockets dangerous to the health. See him at least twice a year if for nothing more than to get a clean bill of health.

# *Pyorrhea attacks* 4 out of 5

Four out of five of your friends past forty, and many younger, succumb to the assault of grim pyorrhea. And carelessness alone is to blame.

Resolve today to remove pyorrhea's menace by brushing teeth and gums regularly night and morning with Forhan's for the Gums.

Forhan's helps to keep pyorrhea away or helps to check its course if used regularly and used in time. It contains Forhan's Pyorrhea Liquid which dentists use to fight pyorrhea.

It is a pleasant tasting dentifrice the entire family likes. It firms the gums and keeps them pink and healthy. It cleanses the teeth thoroughly and gives them that sparkling whiteness which is such an asset to your smile.

Remember, four out of five is pyorrhea's count. Delay may mean no end of trouble and expense. Why not start today with Forhan's as a safeguard? At all druggists 35c and 60c in tubes.

*Formula of R. J. Forhan, D. D. S.*
Forhan Company, New York

## Forhan's
**FOR THE GUMS**

MORE THAN A TOOTH PASTE . . . *IT HELPS TO CHECK PYORRHEA*

# 4 winter Cruises *to the* Mediterranean

*Algiers—A street in the Arab quarter*

LEAVE on one ship—spend extra time abroad if you wish—come home on another ship of the same management—and still enjoy the advantages of a planned tour.

Four cruises in the Mediterranean enable you to arrange your trip in this way. You can make the round in as little as 46 days—or you can spend a month on the Riviera or any other spot you wish and pick up the thread of your travel later.

Your ship will be a famous ocean liner. Utmost luxury will surround you during the brief spaces between ports of call.

**ADRIATIC** *Sailing* **Jan. 5** *and* **Feb. 23**
**LAPLAND** *Sailing* **Jan. 15** *and* **Mar. 5**

Back in New York in 46 days. Stop-overs from ship to ship arranged if desired, or cross Europe and return from a northern port.

**$695** (up) *All Expenses Included*

*Itinerary:* New York, Madeira, Gibraltar, Algiers, Monaco, Naples, Athens, Constantinople, Haifa (for Holy Land), Alexandria (for Cairo and the Nile), Syracuse, Naples, Monaco, Gibraltar, New York.

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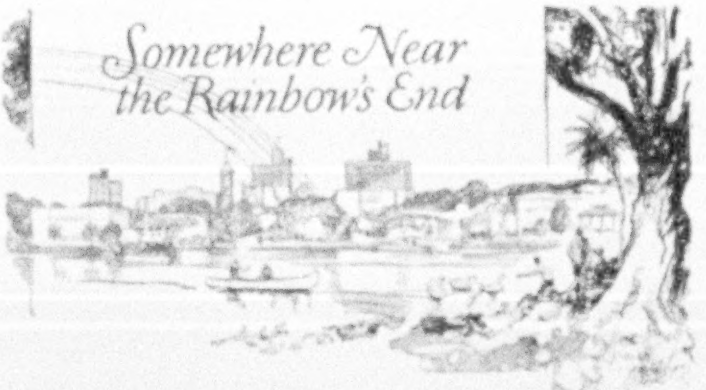
Address, Cruise Dept., No. 1 Broadway, New York; our offices elsewhere or authorized agents.

**WHITE STAR LINE**
**RED STAR LINE**



## Somewhere Near the Rainbow's End



SUNNY days and balmy breezes—whispering palms and fragrant flowers—orange groves and evergreen oaks—homes beside silvery lakes—places to go and places to play—happy, friendly people—nearly everything, indeed, that you would expect to find at the fabled "rainbow's end" you will find in Orlando, the City Beautiful. Splendid accommodations, varied entertainment and rare opportunities for outdoor play. Write for booklet.

ORLANDO
AND
Orange County
CHAMBERS OF COMMERCE
ORLANDO
FLORIDA
13 Chamber of Commerce Building



## Laborless—and safer

THE toilet bowl must be kept sanitary. It is dangerous to neglect it. Sani-Flush keeps the toilet bowl glistening white. It eliminates all the work. And it does a more thorough job because it cleans the hidden trap which no brush can reach.

All you need do is to sprinkle Sani-Flush in the bowl. Follow the directions. Then flush. You will see every mark, stain, incrustation vanish. Foul odors disappear.

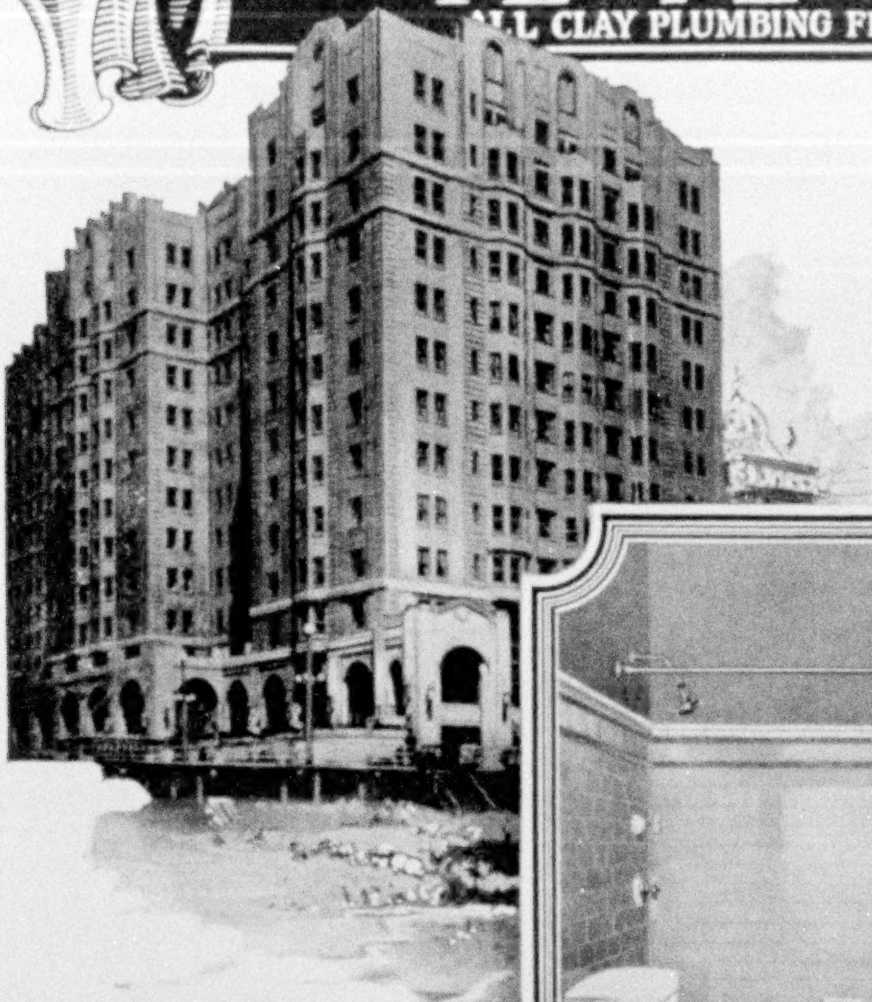
Sani-Flush is a necessity in every home. Keep it always handy in the bathroom.

*Buy Sani-Flush in new convenient punch-top can at your grocery, drug or hardware store, or send 25c for a full-size can. 30c in Far West. 35c in Canada.*

**Sani-Flush**
Cleans Closet Bowls Without Scouring
THE HYGIENIC PRODUCTS CO., Canton, Ohio

# TE-PE-CO

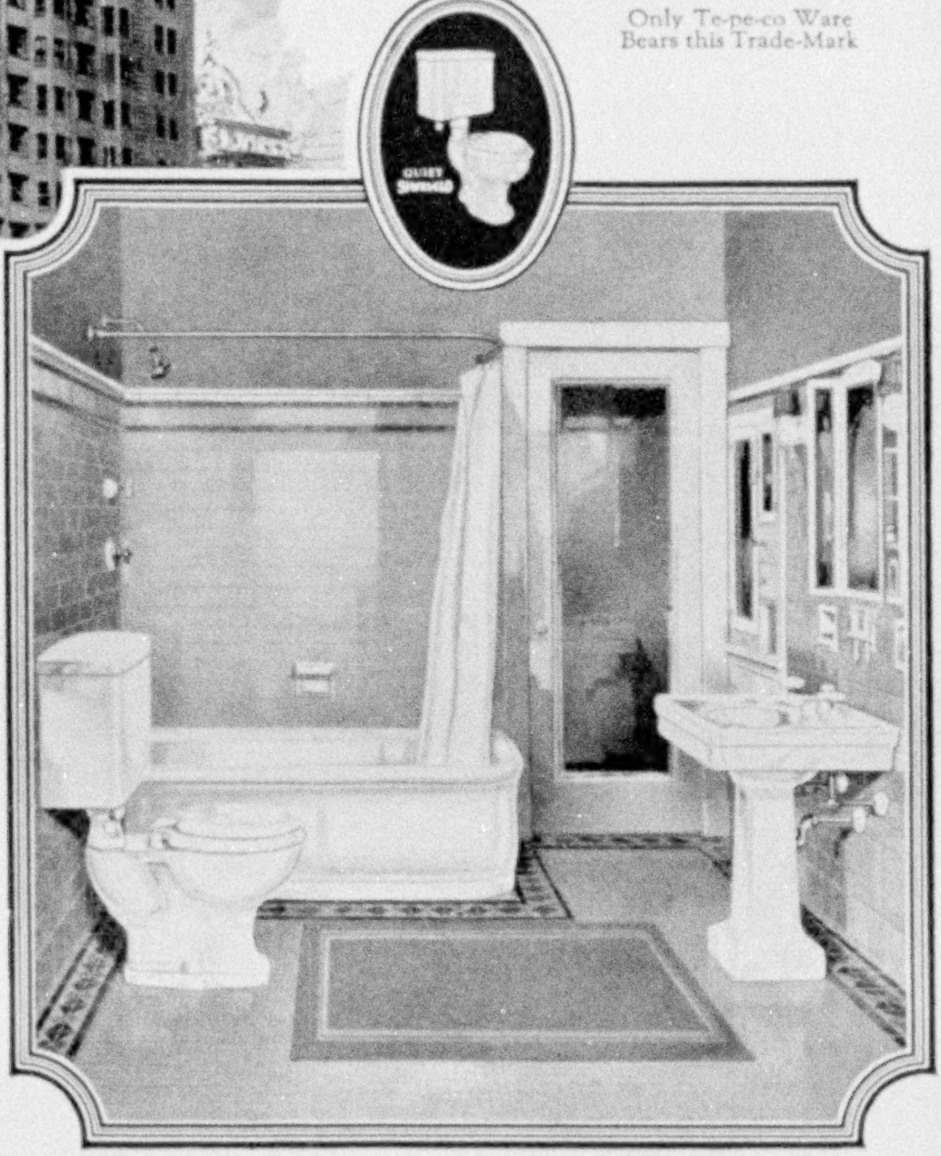
## ALL CLAY PLUMBING FIXTURES

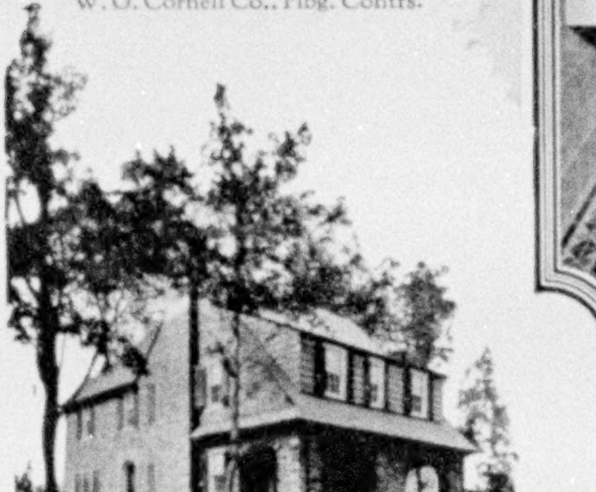


Hotel Ambassador
Atlantic City, N. J.
Warren & Wetmore, Architects
J. D. Johnson Co., Plbg. Supplies
W. G. Cornell Co., Plbg. Contrs.

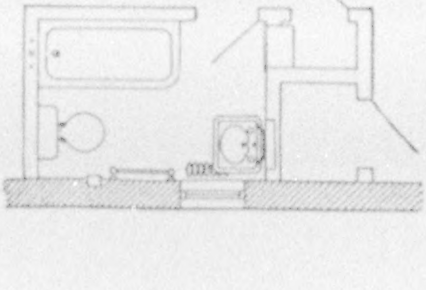
TEPECO — THE TRENTON POTTERIES COMPANY

Only Te-pe-co Ware
Bears this Trade-Mark





Much depends upon the arrangement of your bathroom. A little book, "Bathrooms of Character," T-4, shows dozens of model bathroom plans like the one below. Send 10 cents for your copy.



PERFECT sanitation is as essential in the most modest home as in the greatest public building. And lasting beauty of bathroom fixtures is as desirable.

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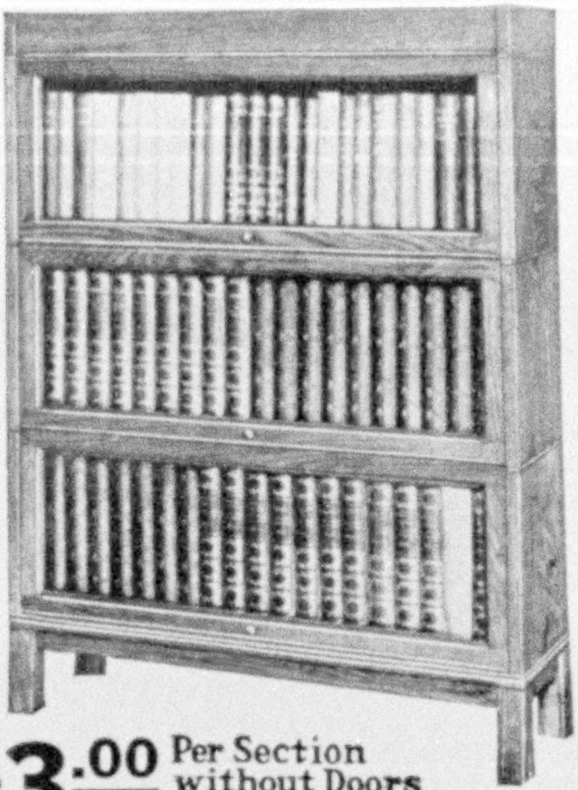

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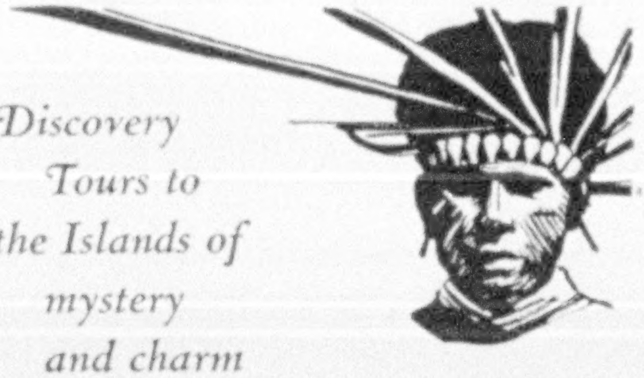

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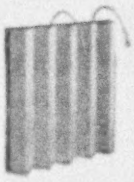

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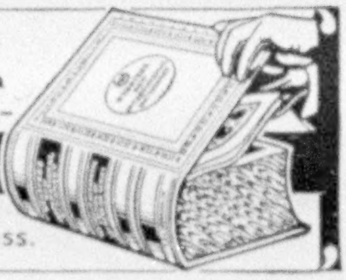

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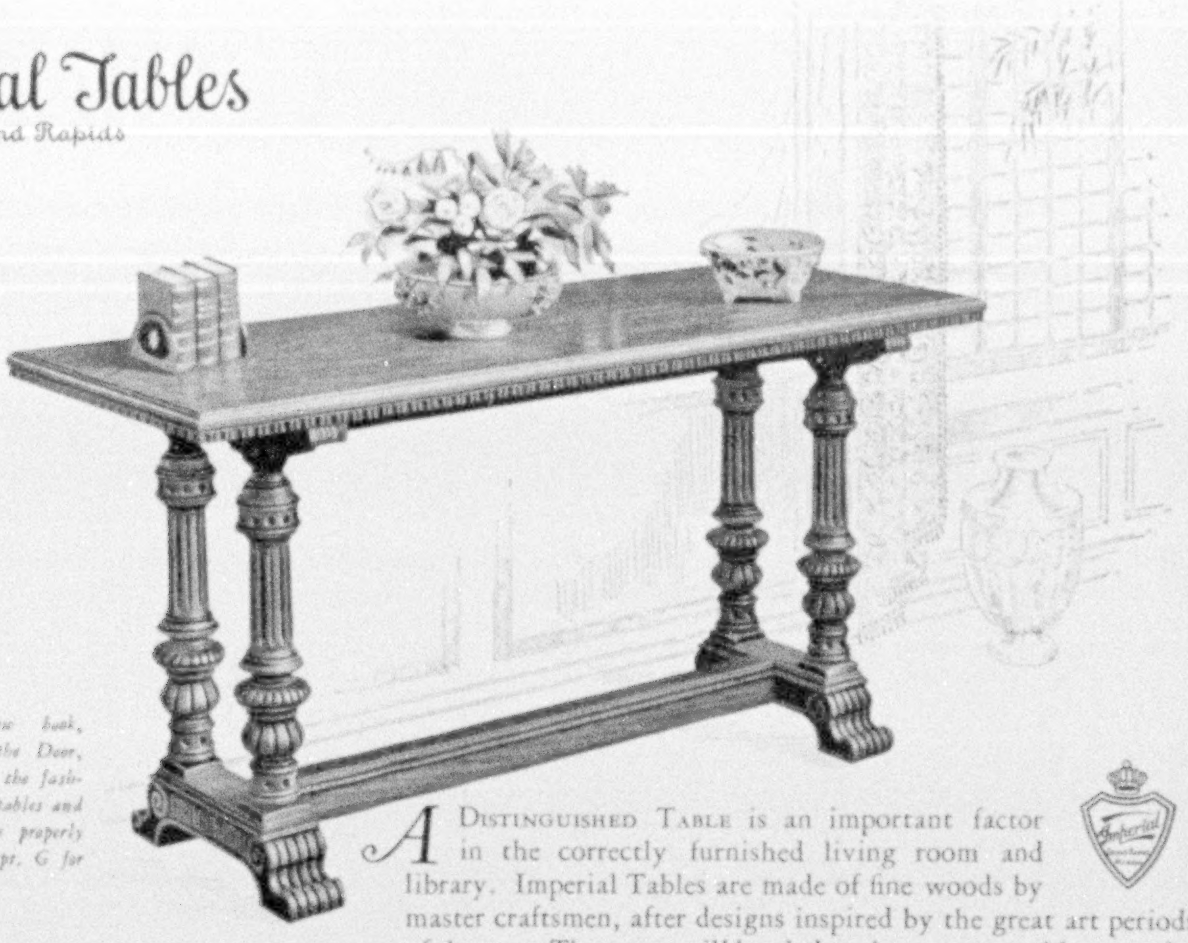

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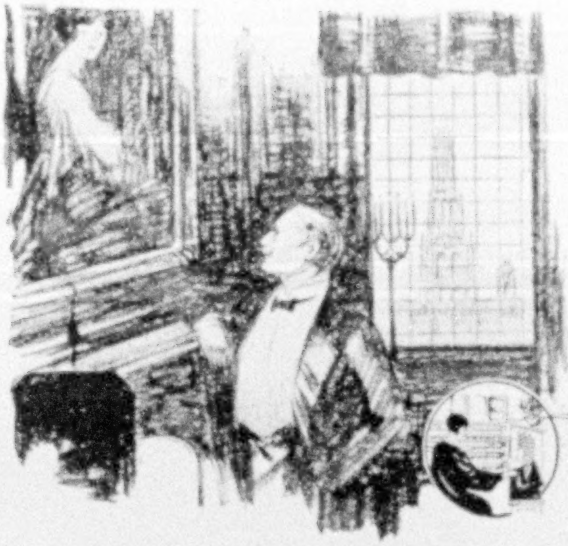

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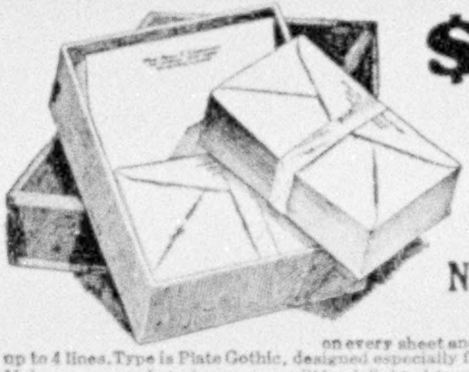

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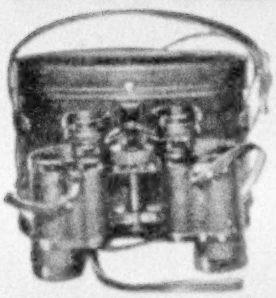

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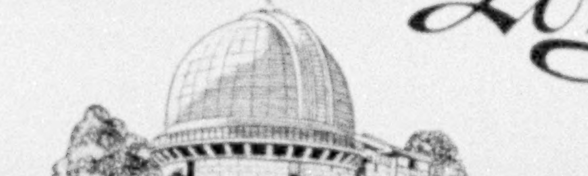
## The Longines WATCH



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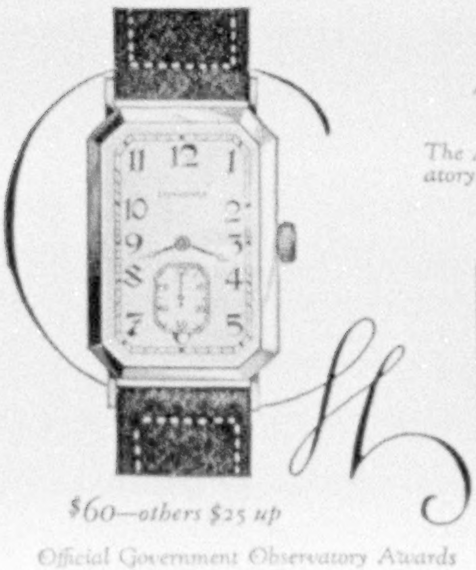
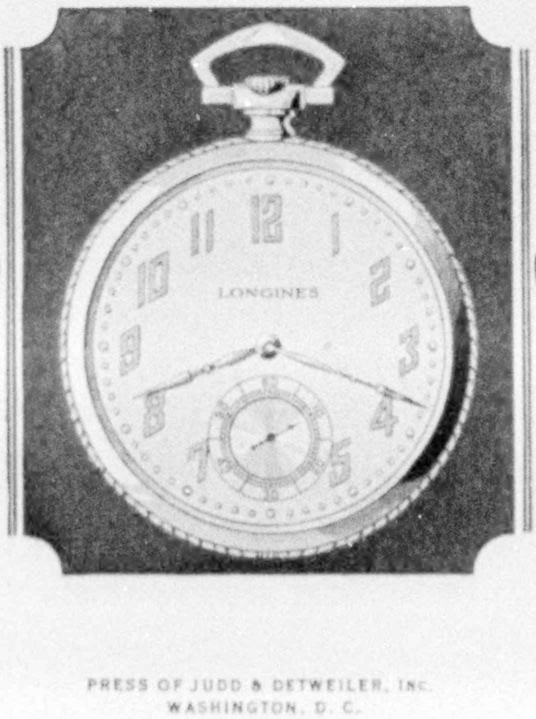


*$60—others $25 up*

*Official Government Observatory Awards in Accuracy Contests*

*U. S. Naval Observatory, Washington, D.C.*—Since 1916 more Longines passed and were accepted than all other competing watches combined. The official watch for U.S. Naval Torpedo Boat Service.

*Neuchatel Observatory, Switzerland*—During 1924 and 1925, 21 first prizes. Since 1905, 397 awards.




*$45—others $35 up*

*$75—others $40 up*

*Geneva Observatory, Switzerland*—In 1925 Longines again received first prize of series, duplicating results of 1923 and 1924.

*Kew Teddington Observatory, England*—141 awards in Accuracy Contests since 1910 (1918 year's record for the best performance). Since 1919 every Longines Watch submitted passed trial with mention "especially good."

*Also received seven grand prizes at International Exhibitions.*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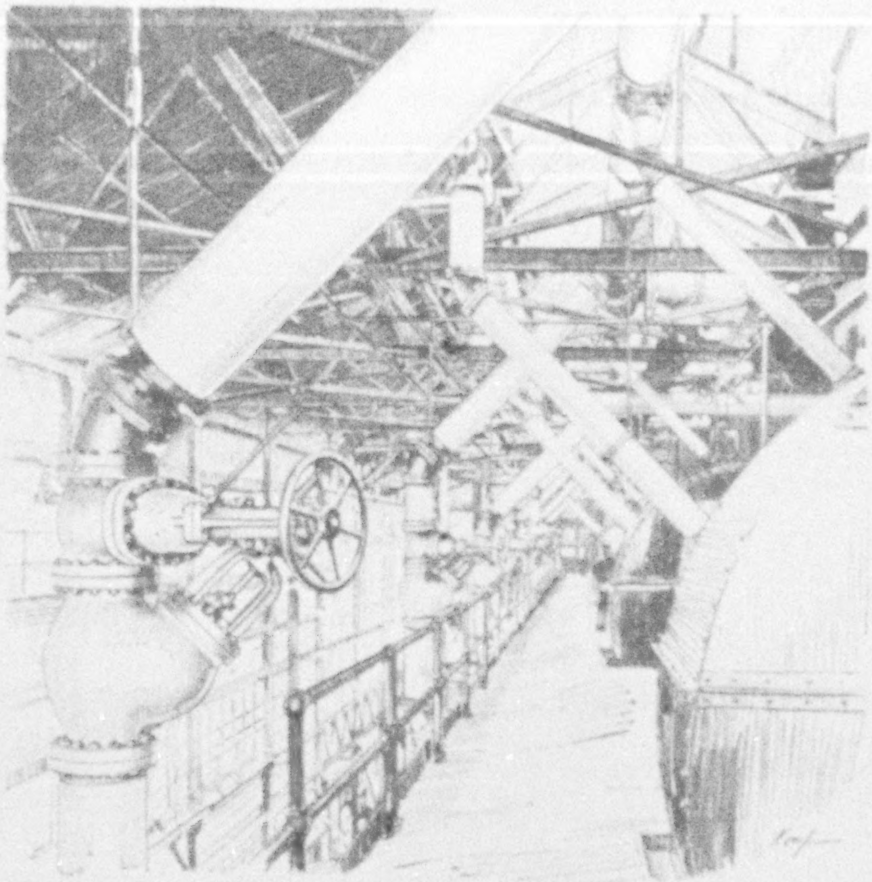

A view in the Carrie boiler house of the Carnegie Steel Co., Rankin, Pennsylvania, showing boiler leads and main steam header. The valves and fittings are of extra heavy Crane electric cast steel. B. Floersheim & Co., Pittsburgh, were the piping contractors.

# Carnegie Steel Co. chooses Crane cast steel

Historians, marking man's progress by his use of metals, call this "the age of steel." The story of its utilization, from the days of the Toledo sword-blade to our skyscrapers and ships and mighty river spans, is a romantic epic of advancing knowledge. Today, the high tribute to any material or product is to say that it is as strong as steel.

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A Crane shower, with volume regulator to meet variations in water pressure.

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